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Citation for published version:
Saunders, D, Sanderson, M, Brazzelli, M, Greig, C & Mead, G 2013, 'Physical fitness training for stroke patients', *Cochrane Database of Systematic Reviews*. https://doi.org/10.1002/14651858.CD003316.pub5

Digital Object Identifier (DOI):
10.1002/14651858.CD003316.pub5

Link:
Link to publication record in Edinburgh Research Explorer

Document Version:
Publisher's PDF, also known as Version of record

Published In:
Cochrane Database of Systematic Reviews

Publisher Rights Statement:
©Saunders, D., Sanderson, M., Brazzelli, M., Greig, C., & Mead, G. (2013). Physical fitness training for stroke patients. Cochrane Database of Systematic Reviews, doi: 10.1002/14651858.CD003316.pub5

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Download date: 06. May. 2023

Physical fitness training for stroke patients (Review)

Saunders DH, Sanderson M, Brazzelli M, Greig CA, Mead GE

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2013, Issue 10

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[Intervention Review]

Physical fitness training for stroke patients

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Editorial group: Cochrane Stroke Group.
Publication status and date: New search for studies and content updated (conclusions changed), published in Issue 10, 2013.
Review content assessed as up-to-date: 31 January 2013.

Citation: Saunders DH, Sanderson M, Brazzelli M, Greig CA, Mead GE. Physical fitness training for stroke patients. *Cochrane Database of Systematic Reviews* 2013, Issue 10. Art. No.: CD003316. DOI: 10.1002/14651858.CD003316.pub5.

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ABSTRACT

Background

Levels of physical fitness are low after stroke. It is unknown whether improving physical fitness after stroke reduces disability.

Objectives

To determine whether fitness training after stroke reduces death, dependence, and disability. The secondary aims were to determine the effects of training on physical fitness, mobility, physical function, quality of life, mood, and incidence of adverse events.

Search methods

We searched the Cochrane Stroke Group Trials Register (last searched January 2013), the Cochrane Central Register of Controlled Trials (CENTRAL) (*The Cochrane Library* 2012, Issue 12: searched January 2013), MEDLINE (1966 to January 2013), EMBASE (1980 to January 2013), CINAHL (1982 to January 2013), SPORTDiscus (1949 to January 2013), and five additional databases (January 2013). We also searched ongoing trials registers, handsearched relevant journals and conference proceedings, screened reference lists, and contacted experts in the field.

Selection criteria

Randomised trials comparing either cardiorespiratory training or resistance training, or both, with no intervention, a non-exercise intervention, or usual care in stroke survivors.

Data collection and analysis

Two review authors independently selected trials, assessed quality, and extracted data. We analysed data using random-effects meta-analyses. Diverse outcome measures limited the intended analyses.

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Main results

We included 45 trials, involving 2188 participants, which comprised cardiorespiratory (22 trials, 995 participants), resistance (eight trials, 275 participants), and mixed training interventions (15 trials, 918 participants). Nine deaths occurred before the end of the intervention and a further seven at the end of follow-up. No dependence data were reported. Diverse outcome measures made data pooling difficult. Global indices of disability show a tendency to improve after cardiorespiratory training (standardised mean difference (SMD) 0.37, 95% confidence interval (CI) 0.10 to 0.64; P = 0.007); benefits at follow-up and after mixed training were unclear. There were insufficient data to assess the effects of resistance training.

Cardiorespiratory training involving walking improved maximum walking speed (mean difference (MD) 7.37 metres per minute, 95% CI 3.70 to 11.03), preferred gait speed (MD 4.63 metres per minute, 95% CI 1.84 to 7.43), walking capacity (MD 26.99 metres per six minutes, 95% CI 9.13 to 44.84), and Berg Balance scores (MD 3.14, 95% CI 0.56 to 5.73) at the end of the intervention. Mixed training, involving walking, increased preferred walking speed (MD 4.54 metres per minute, 95% CI 0.95 to 8.14), walking capacity (MD 41.60 metres per six minutes, 95% CI 25.25 to 57.95), and also pooled balance scores but the evidence is weaker (SMD 0.26 95% CI 0.04 to, 0.49). Some mobility benefits also persisted at the end of follow-up. The variability and trial quality hampered the assessment of the reliability and generalisability of the observed results.

Authors' conclusions

The effects of training on death and dependence after stroke are unclear. Cardiorespiratory training reduces disability after stroke and this may be mediated by improved mobility and balance. There is sufficient evidence to incorporate cardiorespiratory and mixed training, involving walking, within post-stroke rehabilitation programs to improve the speed and tolerance of walking; improvement in balance may also occur. There is insufficient evidence to support the use of resistance training. Further well-designed trials are needed to determine the optimal content of the exercise prescription and identify long-term benefits.

PLAIN LANGUAGE SUMMARY

Physical fitness training for stroke patients

Physical fitness is important to allow people to carry out everyday activities such as walking and climbing stairs. However, physical fitness is often reduced in stroke patients and may limit their ability to perform everyday activities and also worsen any stroke-related disability. For this reason fitness training has been proposed as a beneficial approach for stroke patients. In January 2013 this review identified 45 trials involving 2188 participants, which tested different forms of fitness training after stroke.

Studies of fitness training can be difficult to carry out. This means most of the studies were small and of moderate quality. However, some consistent findings did emerge. We found that some types of fitness training, particularly those involving walking, can improve exercise ability, walking and balance after stroke. However, there was not enough information to draw reliable conclusions about the impact of fitness training on quality of life or mood.

There was no evidence that any of the different types of fitness training caused injuries or other health problems; exercise appears to be a safe intervention.

BACKGROUND

Physical activity and exercise recommendations exist for a wide range of healthy, older, and patient populations (Nelson 2007; O'Donovan 2010) including those with specific health problems such as stroke (Gordon 2004). Although exercise and physical activity are promoted positively the evidence is still incomplete.

What is physical fitness training?

Exercise refers to a subset of physical activity which is planned, structured, repetitive, and deliberately performed to train (improve) one or more components of physical fitness (USDHHS 2008). Since the term 'exercise' is used more generically within stroke care we will refer to exercise as 'physical fitness training'.

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What is physical fitness?

Physical fitness describes a set of physiological attributes that a person has or achieves, which confer the ability to perform physical activities without undue fatigue. Activities can range from day-to-day tasks to leisure activities (USDHHS 2008). The most important components of physical fitness are those responsible for muscular work, as follows.

1. Cardiorespiratory fitness is the ability to transport and use oxygen and is usually expressed as maximal oxygen uptake (VO_2 max). Cardiorespiratory fitness confers 'endurance', that is the ability to perform physical activity for an extended period.
2. Muscle strength refers to the ability of a specific muscle or muscle group to exert force. Strength is associated with the ability to perform forceful movements such as pushing or lifting.
3. Muscle power refers to the rate at which muscular work can be performed during a single explosive contraction. Power is associated with the ability to carry out forceful movements, in particular those that are dynamic.

In addition, other components of fitness can influence the ability to perform physical activities, including flexibility (range of motion about a specific joint), balance (ability to maintain stability and posture), and body composition (for example relative amounts of fat and fat-free mass).

Determinants of fitness

Physical fitness is lower in women compared with men and it deteriorates due to increasing age (1% to 4% in one year) (Young 2001), physical inactivity (12% to 14% in 10 days) (Kortebein 2008), and other secondary consequences of chronic disease such as inflammation (Degens 2006).

Functional importance of fitness

When the level of fitness is low (regardless of the reason) physical activities may either become limited by fatigue or impossible to perform (Young 2001). Levels of fitness below a threshold needed to perform instrumental activities of daily living (ADL) may mean loss of independence, for example cardiorespiratory fitness (Shephard 2009) and muscle strength (Hasegawa 2008).

Description of the condition

A common neurological consequence of stroke is unilateral loss or limitation of muscle function; the direct consequence can be limitation or loss of movement, mobility, and functional ability. In addition, a whole range of indirect complications occur after stroke (Indredavik 2008; Langhorne 2000). Low levels of physical activity are therefore common soon after stroke (Bernhardt 2004; Bernhardt 2007). In community-dwelling stroke patients cardiorespiratory fitness ranges from 26% to 87% of the value expected in age and gender-matched healthy people (Smith 2012). Muscle strength (Gerrits 2009; Horstman 2008) and muscle power (Saunders 2008) are also impaired with bilateral deficits, which suggest the influence of physical inactivity. The level of post-stoke fitness may be low due to a range of factors directly and indirectly connected to stroke.

1. Pre-stroke fitness levels may already be low since physical inactivity (Lee 2002) and low levels of fitness (Kurl 2003) are both risk factors for stroke. In addition, most stroke patients are elderly (more than 70 years of age) so levels of fitness will be low due to the effects of age (Malbut 2002) and the presence of comorbid diseases.
2. Direct neurological effects of stroke reduce the muscle mass available for activation (e.g. hemiparesis).
3. Post-stroke physical inactivity (for whatever reason) will cause a longitudinal loss of fitness alongside the effects of comorbid diseases and increasing age. Limitation or loss of functional abilities after stroke (e.g. walking, stair climbing, chair rising) are associated with low cardiorespiratory fitness levels, muscle strength, and muscle power (Flansbjer 2006; Patterson 2007; Saunders 2008).

Therefore, inactivity, which commonly occurs after stroke, may result in low levels of physical fitness. This may exacerbate or cause some common post-stroke physical limitations. Restoration of motor function in order to improve functional ability is a key focus within stroke rehabilitation and a number of interventions have been investigated that involve physical activities and physical fitness training (Langhorne 2009).

Description of the intervention

Although the design of physical fitness training interventions varies across healthy people, older people, and patient groups, the structure and content remains guided by a common set of well-established principles (ACSM 1998).

Type of training

Most physical fitness training programs are classified as either: (1) cardiorespiratory training (to improve cardiorespiratory fitness), (2) resistance training (to improve muscular strength and muscle power), or (3) mixed training, which combines cardiorespiratory and resistance training. With regard to other aspects of fitness, all types of training programme have the potential to influence body composition (increase lean mass and reduce adiposity) and some may also incorporate elements which improve flexibility (stretching exercises) and balance.

Mode of training

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The type of fitness training influences the mode(s) of exercise. For example, cardiorespiratory training commonly employs walking and cycling, whilst resistance training employs activities involving muscle contractions resisted by weights, body mass, or elastic devices.

Dose of training

The dose of training is controlled by influencing: (1) the amount of training (for example programme length (weeks, months), frequency (days/week), and duration (minutes) of sessions), and (2) the intensity of training (amount of work or effort).

It is the manipulation of type, mode, and dose which defines an exercise prescription; however, the effectiveness is also influenced by some other critically important principles of training (ACSM 1998) including progression of training, whether training is task-related (specific), and the fact that training effects are reversible if training is reduced or stopped.

Physical fitness training is, therefore, very much a complex intervention with numerous component parts and this can give rise to variation in plausible benefits.

How the intervention might work

Regular physical activity is currently recommended where possible to people of all ages, including those with disabilities, in order to promote and maintain health (Haskell 2007; USDHHS 2008). The dose-response relationship means additional benefits exist if physical fitness training is employed, in particular with regard to physical function. Physical fitness training interventions improve physical function in healthy elderly people (Chodzko-Zajko 2009).

Post-stroke physical activity and fitness levels are low, and these low levels are associated with common post-stroke functional limitations. Increased fitness and physical function could benefit a range of other common post-stroke problems, for example by reducing fatigue, reducing the incidence of falls and fractures, compensating for the increased energetic cost of a hemiparetic gait, reducing disability and improving independence, and improving quality of life and mood.

Physical therapies are known to promote structural brain remodelling (Gauthier 2008) and this can influence post-stroke motor deficits. There is systematic review evidence that repetitive practice of some common day-to-day activities produces some modest improvements in mobility and ADL in stroke patients (French 2010). Therefore, participation in repetitive, task-related fitness training may have functional benefits even if fitness is not improved.

Engagement with group training activities may have some psychosocial benefits in people with stroke (Carin-Levy 2009; Mead 2005; Patterson 2009). Therefore, simply participating in physical fitness training may be beneficial, particularly where group activities are involved.

Physical fitness training is known to be beneficial for people with a number of conditions that are comorbid conditions or risk factors for stroke. Systematic review evidence shows that exercise interventions can reduce blood pressure (Cornelissen 2013), improve vascular risk factors in obesity (Shaw 2006) and type II diabetes (Thomas 2006), reduce mortality in coronary heart disease (CHD) patients (Heran 2011), and improve depressive symptoms in patients diagnosed with depression (Rimer 2012). Therefore, post-stroke cardiorespiratory training, in particular, could reduce morbidity and mortality through secondary prevention of stroke and comorbid disease.

In summary, physical fitness training does not simply provide a mechanism to increase fitness, it has multiple mechanisms of action and has a spectrum of plausible benefits that are relevant to many people with stroke. However, there may also be risks, such as training-induced soft tissue injuries, altered muscle tone, falls, and vascular events.

Why it is important to do this review

Physical fitness training for stroke survivors remains under-investigated in two key areas.

- Firstly, the range of possible benefits is not fully explored. The top 10 most important research priorities for 'life after stroke' have recently been defined by a partnership of patients, carers, and clinicians; exercise interventions may have a beneficial role in at least five of the top 10 research priorities (Pollock 2012).
- Secondly, although enough evidence is available to implement fitness training for stroke, the optimal exercise prescription has yet to be defined (Mead 2011).

There has been sustained interest in physical fitness interventions for stroke evidenced by the trials included in previous updates of this review: Saunders 2004a (12 trials), Saunders 2009 (24 trials), and Brazzelli 2011 (32 trials). The previous version of this Cochrane Review was the fourth most cited Cochrane systematic review about stroke and the seventh most accessed Cochrane review (2164 full-text accesses during 2011) about stroke as a whole (source: *The Cochrane Library* Impact Data Pack, 2011). Considering the degree of incomplete knowledge and the high level of interest we believe it is essential to continue updating this review.

OBJECTIVES

To determine whether fitness training after stroke reduces death, dependence, and disability. The secondary aims were to determine the effects of training on physical fitness, mobility, physical function, quality of life, mood, and incidence of adverse events.

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METHODS

Criteria for considering studies for this review

Types of studies

All trials described as randomised controlled trials (RCTs), single-blinded or open, that examined the effects of cardiorespiratory, resistance, or mixed training using any of the following six comparisons.

- Cardiorespiratory training versus control: (1) at the end of intervention, (2) at the end of follow-up.
- Resistance training versus control: (3) at the end of intervention, (4) at the end of follow-up.
- Mixed training (cardiorespiratory plus resistance training) versus control: (5) at the end of intervention, (6) at the end of follow-up.

In this review 'end of intervention' refers to the time point when a training programme finishes; 'end of follow-up' refers to any time point occurring after the end of the intervention. Measures at the end of follow-up allow us to examine whether training effects (if any) are retained after training is completed.

We included studies in which controls were exposed to either physical activity occurring during usual care or no training after usual care. By 'no training' we meant either no intervention or a non-exercise intervention (for example cognitive tasks or sham training). Therefore, we deemed the following comparisons suitable for inclusion where 'usual care' refers to inpatient hospital care or other standard rehabilitation given to all stroke patients delivered as a normal part of stroke care in the region in which the trials were performed:

- training plus usual care versus usual care (during usual care);
- training versus no training (after usual care).

We included only full-text reports of published and unpublished trials. We did not include conference proceedings alone (that is abstract and poster presentations) because usually they provide only limited data and do not allow full assessment of study quality. We did not exclude trials on the basis of their sample size. We included studies published in languages other than English only when a translation could be arranged. Where investigators published several reports based on data from a single study population, we selected the most recent or most complete report for data extraction and we listed the other reports as duplicate publications.

Types of participants

Adult stroke survivors who were considered suitable for fitness training by the trials' authors. Participants were considered eligible irrespective of the time since stroke onset.

Types of interventions

We assessed the following interventions.

Cardiorespiratory training

The aim of this type of training is to improve the cardiorespiratory component of physical fitness. It is typically performed for extended periods of time on devices or ergometers (for example treadmill, cycling, rowing) or by utilising modes of activity such as walking or climbing stairs.

Resistance training

This type of training is performed primarily to improve muscle strength and muscular endurance or muscle power output, or both. It is typically carried out by making repeated muscle contractions resisted by body weight, elastic devices, masses, free weights or specialised machine weights, and isokinetic devices.

Mixed training

This describes training interventions that comprise different activity components, some intended to improve cardiorespiratory fitness and others to improve strength, power or muscular endurance; for example, a training programme comprising both cycling and weight training.

We only included trials that aimed at training stroke survivors. We defined 'training' as a systematic, progressive increase in the intensity or resistance, frequency, or duration of the physical activity throughout a scheduled programme. We categorised the 'dose' of the cardiorespiratory or resistance training components of a training programme as falling within or below the American College of Sports Medicine (ACSM) criteria for developing and maintaining fitness (ACSM 1998). We sought measures of adherence to training since this can modify the dose of training received by trial participants. For the purposes of this review, adherence included both: (1) attendance at training sessions, and (2) compliance with exercise instructions during training sessions.

We excluded trials that focused on different types of standard rehabilitation techniques but did not include a physical fitness component. We also excluded trials that combined fitness training with assistive technologies, such as robotic and electromechanical-assisted gait training devices during body weight-supported locomotor training, as well as trials investigating virtual reality approaches. We excluded studies which compared upper and lower body training if an additional non-exercise control group was not considered. If any description of a training regimen was unclear, we contacted the authors for further information.

Types of outcome measures

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We anticipated that existing trials in the literature would use different measures to assess outcomes relevant to this review; in particular they would use a variety of rating scales. For each outcome of interest we tried, therefore, to list the most common and relevant measures or tools. We only included rating scales that had been described in peer-reviewed journals.

Primary outcomes

1. Case fatality: numbers of deaths from all causes.
2. Death or dependence: composite outcome where dependence is classified as having a Barthel Index score of less than 20 or modified Rankin Scale score of 3, 4, or 5 (Lindley 1994).
3. Disability: assessed by functional scales such as the Functional Independence Measure (Hamilton 1994); Barthel Index (Collin 1988); Rivermead Mobility Index (Collen 1991); Functional Ambulation Category (Holden 1984); Nottingham Extended Activities of Daily Living Scale (Wade 1992); Lawton Index of Activities of Daily Living (Lawton 1969); and the Stroke Impact Scale (Duncan 1999).

Since the review protocol was originally written, the use of the International Classification of Functioning, Disability and Handicap (ICF) is becoming more widespread (WHO 2001). In the ICF classification the term 'disability' is an umbrella term for impairments and activity limitations. In this version of the review the primary outcome measure 'disability' refers to 'global indices of activity limitation'. Secondary outcome measures of mobility and physical function refer to 'specific activity limitations'.

Secondary outcomes

- Adverse effects: recurrent non-fatal cardiovascular or cerebrovascular events; altered muscle tone; training-induced injury; incidence of falls; incidence of fractures.
- Vascular risk factors: resting systolic and diastolic blood pressure; resting heart rate; total cholesterol.
- Physical fitness: exercise heart rate and maximum or peak oxygen uptake (peak VO_2); muscle strength and power output; body mass index (BMI).
- Mobility: gait speed (maximum or preferred speed); gait capacity (e.g. six-minute walking test (6-MWT)).
- Physical function: balance; stair climbing; weight bearing; 'timed up and go' test.
- Health status and quality of life: any relevant scale such as the Short Form 36 Health Survey Questionnaire (http://www.sf-36.org) and the Nottingham Health Profile (Hunt 1980).
- Mood: any relevant scale such as the Hospital Anxiety and Depression Scale (HADS) (Zigmond 1983); the Beck Depression Index (Beck 1961).

Search methods for identification of studies

See the 'Specialized register' section in the Cochrane Stroke Group module. We searched for trials in all languages and arranged translation of relevant papers published in languages other than English.

Electronic searches

We searched the Cochrane Stroke Group Trials Register, which was last searched by the Managing Editor in January 2013. In addition, we searched the following electronic bibliographic databases:

- Cochrane Central Register of Controlled Trials (CENTRAL) (*The Cochrane Library* 2012, Issue 12: searched January 2013) (Appendix 1);
- MEDLINE (1966 to January 2013) in Ovid (Appendix 2);
- EMBASE (1980 to January 2013) in Ovid (Appendix 3);
- CINAHL (1982 to January 2013) in EBSCO (Appendix 4);
- SPORTDiscus (1949 to January 2013) in EBSCO (Appendix 5).

We developed the search strategies for the electronic databases with the help of the Cochrane Stroke Group Trials Search Co-ordinator. The MEDLINE search strategy includes both MeSH controlled vocabulary (/) and free text terms (.tw.) for the relevant target condition (for example stroke, cerebrovascular diseases) and for specific interventions (for example fitness training, muscle strengthening, cycling, rowing, treadmill, circuit training). We limited the search to clinical trials and intervention studies carried out in humans. We did not apply any language restrictions. We adapted the MEDLINE search strategy, and accommodated differences in indexing and syntax, to search the other major electronic databases. We imported all citations identified by the electronic searches into a Reference Manager database and removed duplicate records.
We also searched the following electronic databases and websites using the terms 'stroke', 'exercise', and 'physical fitness' to identify additional relevant trials, ongoing trials, and thesis dissertations:

- Science Citation Index Expanded (1981 to January 2013) (WOK);
- Web of Science Proceedings (1982 to January 2013) (WOK);
- Physiotherapy Evidence Database (PEDro) (last searched January 2013) (www.pedro.fhs.usyd.edu.au/);
- REHABDATA (1956 to Jan 2013) (http://www.naric.com/);
- Index to Theses in Great Britain and Ireland (1970 to January 2013) (www.theses.com/);
- Internet Stroke Centre's Stroke Trials Directory database (last searched January 2013) (www.strokecenter.org/trials/);
- metaRegister of Controlled Trials (last searched January 2013) (www.controlled-trials.com/mrct/).

We performed citation tracking of all reports selected for inclusion using Google Scholar (http://scholar.google.co.uk/) (last searched

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June 2013).

Searching other resources

We scrutinised the proceedings of relevant stroke meetings listed on the Internet Stroke Centre's website (www.strokecenter.org/) including the European Stroke Conference (2000 to 2012), the International Stroke Conference (2000 to 2012), and the World Stroke Conference (2000 to 2012). Proceedings were used to identify ongoing studies and full publications that may have been missed in other searches. We did not consider potentially relevant completed studies for inclusion if they were available only as conference proceedings; instead we retained them as 'Studies Awaiting Classification'. We will consider these studies for inclusion in the next update of this review if a full publication has subsequently become available.

We handsearched relevant scientific journals that focus on exercise and physical fitness and are not currently included in the The Cochrane Collaboration handsearching programme:

- *Adapted Physical Activity Quarterly* (1984 to January 2013);
- *British Journal of Sports Medicine* (1974 to January 2013);
- *International Journal of Sports Medicine* (1980 to January 2013);
- *Journal of Science and Medicine in Sport* (1998 to January 2013);
- *Research Quarterly for Exercise and Sport* (1985 to January 2013);
- *Sports Medicine* (1984 to January 2013).

We examined the references lists of all relevant studies identified by the above methods and perused all relevant systematic reviews identified during the entire search process for further trials. We also checked all the references in both the studies awaiting classification and ongoing studies sections of the previous version of this review. We contacted experts in the field and principal investigators of relevant studies to enquire about unpublished and ongoing trials.

Data collection and analysis

Selection of studies

One review author (DS) read the titles and abstracts of all citations identified by the electronic searches and excluded obviously irrelevant reports. We retrieved the full text of the remaining papers and two review authors (DS and MS) independently assessed these and selected trials which met the pre-specified inclusion criteria. Any disagreements were resolved by discussion and if necessary in consultation with a third review author (GM or CG). One review author (DS) also screened the correspondence with experts and trial investigators for details of any additional published or unpublished trials.

Data extraction and management

Two review authors (MS and DS) independently extracted data from the selected studies. We recorded the following characteristics for each individual study.

- Publication details: authors, year of publication, publication status (published, unpublished, or ongoing), citation of other relevant trials.
- Details of study conduct: study design, method of recruitment, inclusion and exclusion criteria, number of participants enrolled, number of participants excluded, number of participants assessed, losses to follow-up, geographical location of the trial, setting in which the trial was conducted (e.g. hospital, community).
- Characteristics of participants: total number, age, gender, stage of care, severity of stroke, time since stroke onset, co-morbidity, walking ability.
- Details of intervention: total number of intervention groups, type of training (i.e. cardiorespiratory, resistance, or mixed), training mode (e.g. treadmill walking, weight training), dose (i.e. intensity, frequency of delivery), timing (i.e. during or after usual care), length of training (i.e. duration and programme length), adherence to intervention (i.e. attendance, compliance).
- Details of outcome measures: choice of outcomes (i.e. death, dependence, disability, physical fitness measures, gait assessment, physical function measures, health status and quality of life, mood, adverse events, risk factors), outcome data, reported outcomes, missing outcomes.

We classified all outcome data as being from time points at either: (1) the end of intervention, or (2) the end of follow-up (that was defined as any period of time after the training intervention was completed). We resolved any disagreement by consensus or arbitration.

Assessment of risk of bias in included studies

Two review authors (MS and DS) assessed the risk of bias for the following items, as described in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011). We included one extra item 'confounded by increased training time' where we recorded trials that did not include a balanced exposure to an attention control as being at 'high risk' of exaggerating effects.

- Random sequence generation
- Allocation concealment
- Blinding of participants *
- Blinding of outcome assessment
- Incomplete outcome data
- Selective reporting
- Other bias
- Confounded by increased training time

* For trials of physical interventions like exercise it is not possible to blind participants or those delivering interventions. However,

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some trials may incorporate a degree of blinding if the control group participates in an attention control intervention that allows the investigators to disguise the exact purpose of the two interventions; the trial could be described simply as a 'comparison of two interventions'.

Data synthesis

We carried out statistical analysis using RevMan 5.2 (RevMan 2012). We calculated a summary statistic for each outcome measure to describe the observed treatment effect. All summary statistics reported in this review refer to effects at either: (1) the end of intervention, or (2) the end of follow-up. We qualitatively assessed whether clinical heterogeneity was present among included studies and we combined studies in a meta-analysis only when we judged them reasonably homogeneous in terms of participants, interventions, and outcomes.

Continuous and dichotomous data

The data required for meta-analyses of continuous data in RevMan 2012 were mean and standard deviation (SD). When collecting continuous data we took some precautions to check whether standard error (SE) was mistakenly reported as SD. We used SE or 95% confidence interval (CI) to compute SD when missing. The included studies presented results of continuous data either as mean and SD of change from baseline for each intervention group or mean and SD of final measurement values, or both. We extracted change from baseline scores instead of final measurement values when possible. In our analyses we combined final measurement values with change from baselines scores using the mean difference (MD) method as we assumed that MDs based on changes from baseline scores addressed the same underlying treatment effects as MDs based on final measurements.

The data required for meta-analyses of dichotomous data in RevMan 2012 were number of events in each intervention group and total number of participants in each intervention group.

In the case of missing outcome data, we attempted to analyse data according to the intention-to-treat (ITT) approach. When individual patient data were available we used the 'last observation carried forward' (LOCF) approach (that is the most recently reported outcome was assumed to hold for all subsequent outcome assessments).

Measures of effect

For continuous data we calculated mean differences with 95% CIs if the studies used the same instrument to measure the same outcome (for example disability). However, if studies used a variety of instruments (for example rating scales), we calculated the standardised mean difference (SMD) with 95% CI.

For dichotomous data we calculated odds ratios (OR) with 95% CIs.

We assessed statistical homogeneity between trial results by means of the Chi^2 test for heterogeneity, which is included in the forest plots in RevMan 5. Because the Chi^2 test has notoriously low power in meta-analyses when studies have small sample size, or when the number of events is small, we decided: (1) to set the significance level at 0.10 rather than at the conventional level of 0.05, and (2) to analyse data using a random-effects model (a fixed-effect model would have given the same quantitative conclusions but with narrower CI).

To quantify inconsistency across studies we used the I^2 statistic, which is included in the meta-analysis graphs in RevMan 5.

Where possible, we investigated publication bias by entering data from studies included in the relevant meta-analyses in funnel plots (treatment effect versus trial size).

Subgroup analysis and investigation of heterogeneity

When sufficient data were available, we planned to investigate heterogeneity between included studies (both clinical and statistical) by means of subgroup analyses. We attempted to compare effect estimates in the following main subgroups:

- type of training (cardiorespiratory versus resistance training versus mixed training);
- time of training (during usual care versus after usual care).

The complexity of exercise interventions and low numbers of studies in the meta-analyses mean that subgroup analyses are difficult to perform and difficult to interpret. We explored the following planned subgroups instead, where possible, using a sensitivity analysis approach:

- training programs that met the ACSM guidelines (ACSM 1998) versus those that did not;
- type of control interventions (no intervention versus non-exercise intervention versus other intervention);
- duration of training (less than 12 weeks versus 12 weeks or more);
- severity of stroke (mild symptoms versus severe symptoms).

Sensitivity analysis

When sufficient data were available we planned to explore the influence of some study characteristics by means of sensitivity analyses. We considered the effect of excluding studies in which the comparisons were confounded by increased training time and explored some of the factors originally intended for subgroup analyses.

RESULTS

Description of studies

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Results of the search

The previous version of this review (Brazzelli 2011) included 32 trials (total 1414 participants). In this updated version we repeated the previous electronic searches and other relevant searches (for example handsearching, screening of conference proceedings and relevant websites) in 2013. After removal of duplicates, we screened a total of 7508 citations. We identified 13 systematic reviews of exercise interventions and screened them for relevant trials (An 2011; Brogardh 2012; Chen 2011; English 2010; French 2010; Hancock 2012; Mehrholz 2011; Mehta 2012; Mehta 2012a; Meng 2012; States 2009; Timmermans 2010; van het Hoofd 2011).

The results of our searching activities are summarised in the study flow diagram (Figure 1). We identified and applied the inclusion criteria to a total of 75 potentially relevant new trials.

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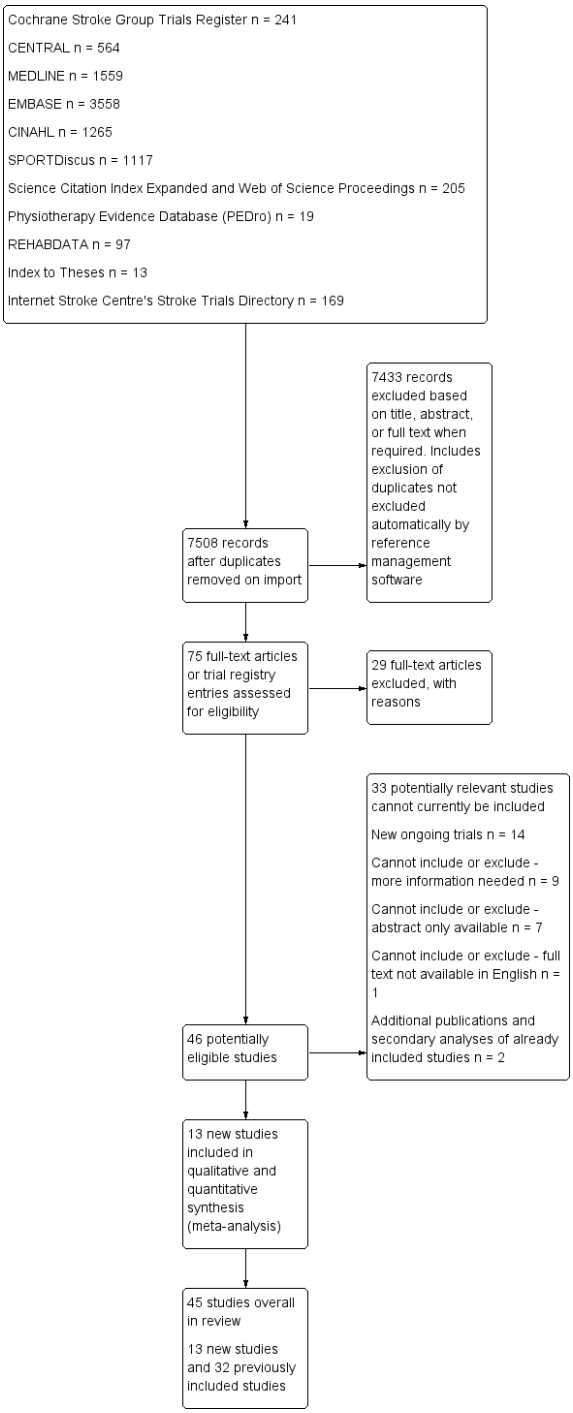
Figure 1. Study flow diagram for the current update of this review.



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- We included 13 additional completed trials (see Characteristics of included studies table).
- We excluded 29 new trials (see Characteristics of excluded studies table).
- We identified 14 new ongoing trials (see Characteristics of ongoing studies table).
- We identified nine trials for which we require more information (Arya 2012; Askim 2010; Byun 2011; Hoyer 2012; Olawale 2011; Shaughnessy 2012a; Tamura 2011; Tung 2010; Yang 2010) (see Characteristics of studies awaiting classification table).
- Seven trials are awaiting classification because only the abstract is currently available (Dean 2010; Mayo 2011; Moore 2012; Qi 2011; Richardson 2011; Srivastava 2011; Van Puymbroeck 2012) (see Characteristics of studies awaiting classification).
- One trial cannot currently be included or excluded because, although the abstract is available in English, the full text is not (Podubecka 2011) (see Characteristics of studies awaiting classification).
- Two trials were additional publications and secondary analyses of already included studies (Flansbjer 2008; Lee 2010).

Overall, the 17 potentially relevant studies in the Characteristics of studies awaiting classification table contain little new primary outcome data and few quality of life measures outcomes. The physical outcomes, including mobility, are unlikely to influence the existing pattern of findings in the review.

Included studies

The 13 new included studies bring the total number of studies in this review to 45 trials. Two trials are dissertations (Cuviello-Palmer 1988; James 2002) and 14 trials have secondary publications (Cooke 2010; da Cunha 2002; Donaldson 2009; Duncan 2003; Eich 2004; Flansbjer 2008; Katz-Leurer 2003; Langhammer 2007; Mead 2007; Salbach 2004; Sims 2009; Richards 1993; Teixeira 1999; Winstein 2004).

Participants

Characteristics

A total of 2188 stroke survivors (range 13 to 250 individuals, mean 44.5, median 42) were randomised to physical fitness training or control interventions in the 45 included clinical trials. The mean age of the patients was approximately 64 years. The mean time since onset of symptoms ranged from 8.8 days in trials assessing participants before discharge from hospital (Richards 1993) to 7.7 years in trials assessing participants after hospital discharge (Teixeira 1999).

One trial recruited non-ambulatory stroke survivors (Richards 1993), three trials recruited both ambulatory and non-ambulatory participants (Bateman 2001; Cooke 2010; Lennon 2008), two trials did not report this information (Donaldson 2009; Winstein 2004), and all the remaining trials recruited ambulatory stroke survivors.

Sample size

Of the 45 included trials:

- 12 had 20 participants or fewer (Bale 2008; Cuviello-Palmer 1988; da Cunha 2002; Donaldson 2009; Duncan 1998; Glasser 1986; James 2002; Kim 2001; Moore 2010; Richards 1993; Smith 2008; Teixeira 1999);
- 11 had between 21 and 40 participants (Aidar 2007; Aidar 2012; Flansbjer 2008; Galvin 2011; Globas 2012; Ivey 2011; Kang 2012; Kuys 2011; Park 2011; Takami 2010; Toledano-Zarhi 2011);
- 11 had between 41 and 60 participants (Eich 2004; Inaba 1973; Ivey 2010; Lennon 2008; Mudge 2009; Ouellette 2004; Pohl 2002; Potempa 1995; Sims 2009; Winstein 2004; Yang 2006);
- four had between 61 and 80 participants (Cooke 2010; Langhammer 2007; Mead 2007; Richards 2004);
- five had between 81 and 100 participants (Bateman 2001; Duncan 2003; Katz-Leurer 2003; Salbach 2004; Zedlitz 2012);
- two had over 100 participants (Ada 2013; 102 participants and van de Port 2012; 250 participants).

Interventions

Cardiorespiratory training

Twenty-two trials with a total of 995 randomised participants (range 15 to 92 individuals) examined cardiorespiratory training (Ada 2013; Aidar 2007; Bateman 2001; Cuviello-Palmer 1988; da Cunha 2002; Eich 2004; Glasser 1986; Globas 2012; Ivey 2010; Ivey 2011; Kang 2012; Katz-Leurer 2003; Kuys 2011; Lennon 2008; Moore 2010; Mudge 2009; Park 2011; Pohl 2002; Potempa 1995; Salbach 2004; Smith 2008; Takami 2010). Details of the cardiorespiratory interventions are summarised in Table 1. Two of these trials assessed circuit training (Mudge 2009; Salbach 2004), one trial assessed aquatic training (Aidar 2007), four trials assessed cycle ergometry (Bateman 2001; Katz-Leurer 2003; Lennon 2008; Potempa 1995), and two assessed a 'Kinetron' ergometer (Cuviello-Palmer 1988; Glasser 1986). The majority of trials focused on walking using treadmills (da Cunha 2002; Eich 2004;

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Globas 2012; Ivey 2010; Ivey 2011; Kang 2012; Kuys 2011; Moore 2010; Pohl 2002; Smith 2008; Takami 2010), overground walking (Park 2011), or a combination of treadmill and overground walking (Ada 2013). The training programs comprised regular weekly sessions of sufficient duration (usually greater than 20 minutes) but the exercise intensity was described in only 10 of the included trials. In 12 trials (515 participants in total) the cardiorespiratory training started after usual care, while in 10 trials (480 participants in total) it started during usual care. In three of these trials participants were recruited in the acute phase of stroke, less than one month post-stroke (Cuviello-Palmer 1988; da Cunha 2002; Takami 2010).

Three of the included cardiorespiratory training trials had more than one intervention group that met the eligibility criteria; these compare two different durations, intensities and modes of training. Each of these studies therefore has two entries when included in any meta-analyses, each sharing 50% of the number of participants in the single control group from each trial.

- Ada 2013: Group 1 - duration four months training; Group 2 - duration two months training.
- Pohl 2002: Group 1 - intensity high due to rapid progression; Group 2 - intensity lower due to limited progression.
- Takami 2010: Group 1 - mode: backward walking on treadmill; Group 2 - mode: forward walking on treadmill.

Resistance training

Eight trials with a total of 275 randomised participants (range 18 to 54 individuals) assessed the effects of resistance training (Aidar 2012; Bale 2008; Flansbjer 2008; Inaba 1973; Kim 2001; Ouellette 2004; Sims 2009; Winstein 2004) (details of these trials are summarised in Table 2). All employed muscle contractions resisted by weights, exercise machines, or elastic devices. Five trials limited strength training to the lower limbs, one trial to the upper limbs (Winstein 2004), and two trials trained both the upper and lower limbs (Aidar 2012; Sims 2009). The training met or nearly met the ACSM 1998 criteria for strength training in five trials. Most programs were short (less than 12 weeks) apart from Aidar 2012 and Ouellette 2004 (12 weeks). In five trials resistance training started after usual care (Aidar 2012; Flansbjer 2008; Kim 2001; Ouellette 2004; Sims 2009), whilst in three trials it started during usual care (Bale 2008; Inaba 1973; Winstein 2004). In Winstein 2004 participants were recruited during the acute phase of stroke (less than one month post-onset).

Mixed training

Fifteen trials with a total of 918 randomised participants (range 13 to 250 individuals) assessed the effects of mixed training (Cooke 2010; Donaldson 2009; Duncan 1998; Duncan 2003; Galvin 2011; James 2002; Langhammer 2007; Mead 2007; Richards 1993; Richards 2004; Teixeira 1999; Toledano-Zarhi 2011; van de Port 2012; Yang 2006; Zedlitz 2012) (details of these trials are summarised in Table 3). The mode of exercise was rather diverse (for example circuit training, walking or treadmill training, and resistance training). Eight trials focused on the training of the lower limbs, one trial on the training of the upper limbs, and six trials on the training of both the lower and the upper limbs. All interventions contained one or more functionally relevant activities (such as walking). Intensity of exercise was reported sufficiently to classify the cardiorespiratory component of three trials (James 2002; Langhammer 2007; Teixeira 1999) and the strength component of five trials (Duncan 1998; Duncan 2003; Langhammer 2007; Teixeira 1999; possibly Toledano-Zarhi 2011) as satisfying the ACSM 1998 criteria. In the majority of trials the duration of the intervention programme was less than 12 weeks. In eight trials training started after completion of usual care, whilst in four trials it started during usual care. Three trials recruited participants in the acute phase of stroke, less than one month post-onset (Galvin 2011; Richards 1993; Toledano-Zarhi 2011).

Adherence to training interventions

Adherence to the interventions was defined in terms of: (1) attendance at the planned training sessions, and (2) compliance with the planned content of the training sessions.

Attendance

Rate of attendance (%) could be clearly determined in 24 of the 45 included trials (Ada 2013; Aidar 2012; Bateman 2001; Duncan 1998; Duncan 2003; Eich 2004; Flansbjer 2008; Globas 2012; Kuys 2011; Langhammer 2007; Mead 2007; Mudge 2009; Park 2011; Ouellette 2004; Pohl 2002; Richards 1993; Richards 2004; Salbach 2004; Sims 2009; Toledano-Zarhi 2011; van de Port 2012; Winstein 2004; Yang 2006; Zedlitz 2012). The proportion of attended training sessions ranged from 65% up to 100%. Five trials measured attendance for the training and the control groups separately and showed similar rates between groups (Bateman 2001; Langhammer 2007; Mead 2007; Ouellette 2004; Salbach 2004). A few other trials described attempts to facilitate attendance and make up missed sessions, or reported that "attendance did not differ between intervention groups" but did not provide attendance rates (Bale 2008; Cooke 2010; Teixeira 1999). One trial specifically excluded those participants who attended fewer than nine training sessions from the statistical analyses (thus preventing an intention-to-treat assessment of results) (da Cunha 2002).

Compliance

Compliance with the scheduled exercise programme during training sessions was described in few trials. For cardiorespiratory training interventions, Langhammer 2007 stated that the compliance

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with the individualised training levels was 'high', Pohl 2002 and Globas 2012 reported that participants 'tolerated' training, and Salbach 2004 maintained that most of the participants completed nine out of 10 circuit training exercises. For mixed training, Duncan 1998 reported 'good compliance' with home-based training and Yang 2006 stated that mixed circuit training was 'performed as planned'. Mead 2007 reported 94% to 99% compliance with circuit training exercises 'tailored' to individual requirements. Information on compliance was not available for the remaining trials. Zedlitz 2012 described the compliance of participants with training as 'good'; they also examined the compliance of therapists in delivering the content of the planned protocol (more than 98%).

Comparisons

Training interventions were compared with control interventions in different ways in the included studies. We identified seven different types of comparison, which has implications for establishing the effects of fitness training.

- Training plus a proportion of usual care versus usual care (eight out of 45 trials).
- Training plus usual care versus usual care (nine out of 45 trials).
- Training plus usual care versus non-exercise intervention plus usual care (two out of 45 trials).
- Training versus non-exercise intervention - after usual care (nine out of 45 trials).
- Training plus non-exercise intervention versus non-exercise intervention - after usual care (three out of 45 trials).
- Training versus no intervention - after usual care (nine out of 45 trials).
- Training versus usual outpatient care (six out of 45 trials).

The nature of some of these comparisons allows intervention and control groups to be comparable in terms of exposure time (both groups are exposed to an intervention, the frequency and duration of which is similar between groups) and the 'attention' received by the therapists. Therefore, these comparisons allow one to separate the specific effects of fitness training from those of usual rehabilitation interventions.

Other comparisons make it impossible to have a comparable intervention and control group exposure time (for example the 'training versus no intervention' comparison). We will describe these comparisons in the review as 'confounded by additional training time'. With regard to interventions involving physical exercise, a greater exposure to the intervention has a known effect on rehabilitation outcomes ('augmented therapy time') (Kwakkel 2004). Therefore, although these comparisons allow comment on the overall effect of training programs, they make it difficult to attribute any benefits to the content of the exercise prescription itself.

Outcome measures

Outcome measures were recorded at the end of the training period (end of intervention), or at any other defined point either within the trial duration or after completion of the training programme, or both (scheduled end of follow-up).

A variety of outcome measures were used in the included studies but few trials shared the same outcome measures. This limited the opportunity to combine outcome measures in the meta-analyses. Some outcome measures involved continuous data (for example assessment scales) with skewed distributions. Due to time and resources constraints we did not attempt to transform these data (Higgins 2008). We therefore combined continuous skewed data and continuous normal-distributed data.

Excluded studies

The most common reasons for exclusion were: a controlled trial in which the intervention did not meet the criteria for fitness training or did not include a suitable comparison, or a confounding of training with another active physical intervention.

Risk of bias in included studies

Details and justifications for 'Risk of bias' assessments in individual studies are shown in the Characteristics of included studies table. As this is a complicated review we decided to apply the 'Risk of bias' assessments to 'all outcomes' for simplicity apart from incomplete outcome data, for which bias was assessed at (1) the end of the intervention, and (2) the end of follow-up. We present the summary results in Figure 2 and Figure 3.

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Figure 2. 'Risk of bias' summary: review authors' judgements about each risk of bias item for each included study.

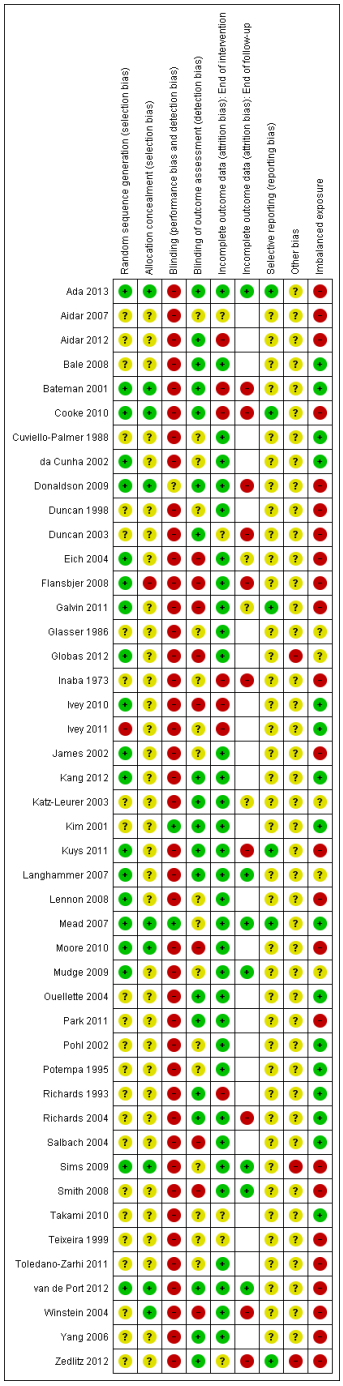

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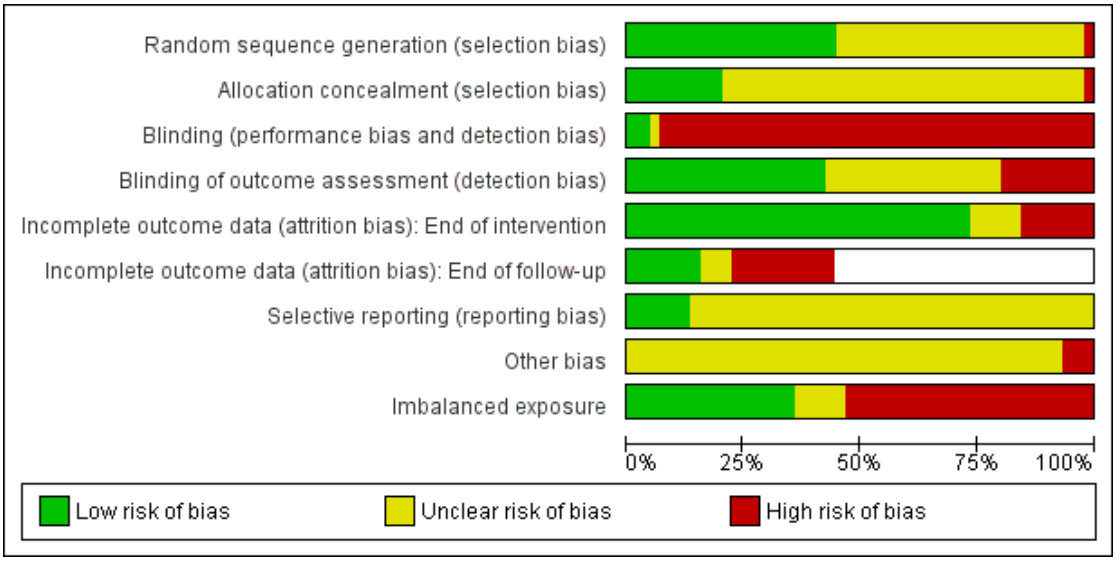
Figure 3. 'Risk of bias' graph: review authors' judgements about each risk of bias item presented as percentages across all included studies.



Allocation

Randomisation

We assessed less than half (20/45, 44%) of the included studies as having a low risk of selection bias. All studies did identify that randomisation had occurred but many did not describe the actual mechanism of how this was achieved. Therefore, uncertainties remain among a number of trials. Most trials of fitness training are small; therefore, the use of techniques to balance participant numbers (e.g. block randomisation) and participant characteristics (e.g. stratification or minimisation based on age, gender, or outcomes of interest recorded at baseline) is quite common.

Allocation concealment

Mechanisms of allocation concealment were poorly reported in nine of the included trials (20%). There are instances when centralised assignment mechanisms are used where allocation concealment is automatic (e.g. Mead 2007) in which case the risk of bias is rated as low. In other trials where allocation concealment mechanisms are needed envelopes were frequently used. Numbered, sealed, opaque envelopes (e.g. Cooke 2010; Donaldson 2009) are appropriate. However, many trials reporting the use of 'sealed envelopes' did not specify whether they were sequentially numbered or opaque therefore we were unable to exclude potential selection bias with certainty.

Blinding

Participant blinding

Participants cannot be blinded to physical interventions like fitness training and in most circumstances (43 of the 45 trials (96%)) the risk of bias is automatically 'high'. However, some trials utilised an attention control where the trialists attempted to blind participants to the 'true nature' of the comparison. In two trials, the participants were informed that they would receive one of two different, potentially beneficial interventions (Kim 2001; Mead 2007) without being given information on the types of interventions. Similarly, in another trial (Donaldson 2009) participants allocated to the experimental group were advised that they were to be offered extra therapy but were not told which type of therapy. In these three instances we reported the judgement on risk of bias as 'unclear'.

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Investigator blinding

We considered the outcome assessment to be at low risk of detection bias in 19 of the included trials (42%). Among trials that used blinded outcome assessment some instructed participants not to reveal group assignments (Bateman 2001; Duncan 2003; Flansbjer 2008; Mead 2007). However, some degree of unmasking can easily occur and was documented in some trials (e.g. Eich 2004; Mudge 2009; Salbach 2004). Outcome assessment was not blinded in six trials (Galvin 2011; Globas 2012; Ivey 2010; Moore 2010; Smith 2008; Winstein 2004).

Incomplete outcome data

Intention-to-treat (ITT) analysis

Twenty-one trials reported the use of an ITT approach for their analyses although one of these trials (Bateman 2001) did not analyse data for the participants who dropped out. In the previous version of this review (Brazzelli 2011) we included sensitivity analyses examining the effect of imputing sometimes large numbers of missing values in data obtained from Bateman 2001; this did not influence any of the findings, therefore only the imputed data are included in this review for simplicity.

Of the 24 trials that did not mention ITT, 15 did not have any missing data (Aidar 2012; Bale 2008; Cuviello-Palmer 1988; Glasser 1986; Ivey 2010; Ivey 2011; Kang 2012; Kim 2001; Moore 2010; Park 2011; Potempa 1995; Smith 2008; Takami 2010; Teixeira 1999; Yang 2006).

Incomplete outcome data

Incomplete outcome data arose from participant attrition meaning all outcomes were affected. At the end of intervention 38 included studies reported an attrition rate of 10% or less. Five trials reported an attrition rate between 10% and 20% (Aidar 2012; da Cunha 2002; Langhammer 2007; Richards 1993; Zedlitz 2012). Two trials exceeded an attrition rate of 20% (Ivey 2010 (25%) and Ivey 2011 (51%)).

At the end of follow-up the attrition rate increased for 11 of the 20 trials that followed participants after completion of the intervention (Bateman 2001; Cooke 2010; Donaldson 2009; Duncan 2003; Galvin 2011; Katz-Leurer 2003; Kuys 2011; Mudge 2009; Richards 2004; Winstein 2004; Zedlitz 2012) and ranged from 14% to 40%. Overall, the proportion of withdrawals was similar for the intervention and control groups. The bias assessment could not be applied when no end of follow-up measurement was included in trial designs. Therefore, some blank spaces occur in Figure 2.

Overall, we judged 33 trials (73%) trials as being at low risk of attrition bias at the end of intervention and seven of 20 trials at the end of follow-up (35%).

Selective reporting

The majority of studies, particularly the older trials, do not have readily available protocols. In most cases, where these were available, there was no evidence of selective reporting of outcomes relevant to this review.

Other potential sources of bias

Most of the included trials recruited participants during hospital or community stroke care. In a few trials, however, participants' recruitment involved media advertisements (Ouellette 2004; Teixeira 1999) or databases of potential volunteers (Kim 2001; Lennon 2008; Mudge 2009; Sims 2009; Yang 2006). These methods of recruitment render these trials more prone to self selection bias and hamper the generalisability of their findings.

Confounded by additional training time (imbalanced exposure)

Trials in which the participants received an unequal amount of exposure to the intervention and comparison arms of the trial are judged to be at high risk of bias. Technically this could be described as a source of confounding rather than bias but it is appropriate to record it here. The design of more than half of the trials in this review mean that in 23 trials (51%) the effects of fitness training could be exaggerated because the training intervention groups received greater time of exposure irrespective of the content of the training programme.

Effects of interventions

Effect of training on primary outcome measures

Case fatality

Cardiorespiratory training (Comparisons 1 and 2)

End of intervention

None of the 22 trials of cardiorespiratory training (1020 participants) reported death as a reason for participant losses (Analysis 1.1). Three of the 22 trials in this analysis did report dropouts but could either not contact participants (Kuys 2011: n = 1) or did not fully describe reasons for dropouts (Bateman 2001; Ivey 2011).

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End of follow-up

One out of five trials (Katz-Leurer 2003) (304 participants) reported that one participant died in the cardiorespiratory training group (1/46) compared with one participant in the control group (1/46) (Analysis 2.1).

Resistance training (Comparisons 3 and 4)

End of intervention

None of the eight trials (274 participants) reported deaths (Analysis 3.1), although one had a large number of undocumented dropouts (Inaba 1973).

End of follow-up

None of the three trials (138 participants) reported deaths (Analysis 4.1), although one had a large number of undocumented dropouts (Inaba 1973).

Mixed training (Comparisons 5 and 6)

End of intervention

Two of the 15 trials (918 participants) reported nine deaths between the baseline and the end of intervention assessments of Langhammer 2007 (6/35 control, 1/32 training) and van de Port 2012 (2/124 control, 0/126 training). Odds of death from all causes whilst participating in mixed training showed a weak tendency favouring training (odds ratio (OR) 0.18, 95% confidence interval (CI) 0.03 to 1.03; P = 0.05; Analysis 5.1). However, in the Langhammer 2007 trial, three of the six deaths in the control and the one death in the training group occurred before discharge and before the intervention began; after excluding these data, the odds of dying was OR 0.19, 95% CI 0.01 to 4.08 (P = 0.29). The other 13 trials reported no deaths. However, two trials described undocumented losses: Richards 1993 (two control) and Richards 2004 (five training, seven control) mentioning only that some participants were not available.

End of follow-up

Four of the 11 trials (762 participants) reported a total of nine deaths (Cooke 2010; Duncan 2003; Galvin 2011; van de Port 2012). These data are cumulative and include both those occurring in the follow-up period along with those deaths occurring before the end of intervention (van de Port 2012: n = 2). Odds of death from all causes at the end of the follow-up period showed a tendency favouring the mixed training although this only approaches borderline significance (OR 0.27, 95% CI 0.06 to 1.11; P = 0.07; Analysis 6.1). The other seven mixed trials reported that no losses to follow-up were attributable to death apart from Richards 1993 (two control), Richards 2004 (five training, seven control), and Zedlitz 2012 (four control), which describe only that some participants were lost or not available for follow-up.

Death or dependence

The composite outcome of death or dependence was not reported by any trial.

Disability

Cardiorespiratory training (Comparisons 1 and 2)

End of intervention

The Functional Independence Measure (FIM) was assessed by three trials during usual care (Bateman 2001) and after usual care (Cuviello-Palmer 1988; Katz-Leurer 2003). Overall, there was no effect of training (standardised mean difference (SMD) 0.21, 95% CI -0.10 to 0.52; P = 0.18; Analysis 1.2). However, the Bateman 2001 data are problematic because the procedures for obtaining FIM data at the end of intervention were not uniform and there was a high proportion of missing FIM data at the end of intervention (38%); exclusion of this trial does not change the result (SMD 0.17, 95% CI -0.29 to 0.63; P = 0.46).

Rivermead Mobility Index (RMI) scores were assessed by three trials during usual care (Bateman 2001; Takami 2010) and after usual care (Globas 2012). There was a small overall improvement in scores (mean difference (MD) 1.56, 95% CI 0.20 to 2.92; P = 0.02; Analysis 1.3). If the problematic data of Bateman 2001 are excluded the effect is strengthened (MD 2.18, 95% CI 0.99 to 3.37; P = 0.0003).

Physical Activity and Disability scale scores were reported by Mudge 2009. Overall, there was no effect (MD 16.90, 95% CI -15.15 to 48.95; P = 0.3; Analysis 1.4).

If all the disability scale data from these individual outcomes are combined (using FIM data from Bateman 2001) there is a significant overall effect in favour of cardiorespiratory training (SMD 0.37, 95% CI 0.10 to 0.64; P = 0.007; Analysis 1.5). If the analysis is repeated using RMI data from Bateman 2001 instead of FIM, an overall effect is still evident (SMD 0.33, 95% CI 0.04 to 0.62; P = 0.03).

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End of follow-up

RMI scores were assessed by Bateman 2001; there was no effect at the end of follow-up (Analysis 2.2).

Nottingham Extended ADL was assessed by Bateman 2001 at the end of follow-up (Analysis 2.3). Although no effect was shown the considerable proportion of missing data (21%) means that the analysis should be treated with caution.

Physical Activity and Disability scale scores were reported by Mudge 2009. There was no effect at the end of follow-up (MD 19.90, 95% CI -17.58 to 57.38; P = 0.3; Analysis 2.4).

The Frenchay Activities Index (FAI) was reported by Katz-Leurer 2003. There was no effect at the end of follow-up (MD 1.00, 95% CI -1.55 to 3.55; P = 0.44; Analysis 2.5).

If all the disability scale data from these individual outcomes are combined (Nottingham Extended ADL data from Bateman 2001) there is no effect of cardiorespiratory training at the end of follow-up (SMD 0.20, 95% CI -0.07 to 0.46; P = 0.14; Analysis 2.6). If the analysis is repeated using RMI data from Bateman 2001 instead of Nottingham Extended ADL data there is still no effect.

Resistance training (Comparisons 3 and 4)

Ouellette 2004 assessed participants' functional abilities and disability outcomes by means of the Late Life Function and Disability Instrument (LLFD). This scale, however, has not been validated in stroke survivors and we have not included it in the analyses. The remaining trials either did not measure disability outcomes or used sub-scales or specific dimensions of existing functional scales (Inaba 1973; Winstein 2004), which we did not deem suitable for inclusion.

Mixed training (Comparisons 5 and 6)

End of intervention

Six trials assessed the effects of mixed training at the end of the treatment phase or at follow-up using a variety of scales which measured disability outcomes: Lawton Instrumental Activities of Daily Living (IADL) scores reported by Duncan 1998 and Duncan 2003 at the end of intervention showed no significant effect (MD 0.83, 95% CI -0.51 to 2.17; P = 0.22; Analysis 5.2).

The Barthel Index was assessed by four trials during usual care (Galvin 2011) and after usual care (Duncan 1998; Duncan 2003; Langhammer 2007) at the end of intervention (MD 2.65, 95% CI -0.95 to 6.25; P = 0.15; Analysis 5.3). Barthel Index scores reached ceiling level in five out of 20 participants at baseline and 10 out of 20 participants at follow-up (Duncan 1998).

RMI was assessed by two trials after usual care (Mead 2007; van de Port 2012). These data showed a significant improvement at the end of intervention (MD 0.48, 95% CI 0.05 to 0.91; P = 0.03; Analysis 5.4).

Nottingham Extended Activities of Daily Living (EADL) was reported by Mead 2007 and showed no significant effects at the end of intervention (MD -0.20, 95% CI -1.08 to 0.68; P = 0.66; Analysis 5.5). In addition, van de Port 2012 reported separately four sub-scales of the Nottingham EADL scale; only one was significantly affected in favour of the usual care rather than mixed training; all other sub-scales were unaffected.

FIM was reported by Mead 2007 and showed no significant effects at the end of intervention (Analysis 5.6).

The Stroke Impact Scale was reported by one study (Duncan 2003) showing a marginal benefit (Analysis 5.7). In addition, van de Port 2012 reported separately 11 sub-scales of the Stroke Impact Scale. One sub-scale was significantly affected in favour of the usual care rather than mixed training; all other sub-scales were unaffected.

If disability scale data from the end of intervention are combined including the Barthel Index (Duncan 1998; Duncan 2003; Galvin 2011; Langhammer 2007), FIM (Mead 2007), and RMI (van de Port 2012), there is a tendency for an effect of mixed training at the end of the intervention (SMD 0.24 (0 to 100), 95% CI 0.00 to 0.47; P = 0.05; Analysis 5.8). There are many potential combinations of data which could be included in this analysis as individual studies report more than one disability scale; therefore, we included Barthel Index data and FIM data as these relate more to overall, 'global' disability. There is heterogeneity among these results too (Chi^2 = 7.62, df = 5 (P = 0.18); I^2 = 34%) and this may relate to the different domains each tool addresses. Another explanation could be that four out of the six trials included in these analyses (Duncan 1998; Duncan 2003; Galvin 2011; van de Port 2012) were confounded by increased training time (amount of contact with therapists in the experimental groups was greater than in the control groups). When these trials were excluded from Analysis 5.8 there was no effect in the remaining subgroup (Langhammer 2007; Mead 2007: MD -0.11, 95% CI -0.45 to 0.23; P = 0.53).

End of follow-up

The Barthel Index was assessed by two trials (Galvin 2011; Langhammer 2007); there was no significant effect at the end of follow-up (MD 1.82, 95% CI -13.69 to 17.33; P = 0.82; Analysis 6.2).

The FIM was reported by Mead 2007 and showed no significant effect at the end of follow-up (MD 0.20, 95% CI -1.88 to 2.28; P = 0.85; Analysis 6.3).

Nottingham EADL was reported by Mead 2007 and Galvin 2011 and showed no significant effects at the end of follow-up (MD 3.10, 95% CI -5.20 to 11.40; P = 0.46; Analysis 6.4).

RMI was assessed by Mead 2007 and van de Port 2012; there was a significant benefit at the end of three to four months of follow-up (MD 0.39, 95% CI 0.04 to 0.73; P = 0.03; Analysis 6.5). The large trial of van de Port 2012 is confounded by increased training in the intervention group compared with the control group; when these data were excluded there was no effect.

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If disability scale data from the end of follow-up are combined including Barthel Index (Galvin 2011; Langhammer 2007), FIM (Mead 2007), and RMI (van de Port 2012), there is no effect (SMD 0.16, 95% CI -0.12 to 0.44; P = 0.26; Analysis 6.6).

It is worth noting that two trials included in these analyses (Galvin 2011; van de Port 2012) were confounded by increased training time.

Comparison of cardiorespiratory training, resistance training, and mixed training (Comparison 7)

We performed a subgroup analysis to directly compare the effects of the different types of training (cardiorespiratory training versus mixed training versus resistance training) on pooled disability outcomes at the end of the intervention (Analysis 7.1). Cardiorespiratory and mixed training together showed an overall beneficial effect. Although the cardiorespiratory training effect was more convincing than the mixed training, which is of borderline significance, the overall magnitude of effect is very similar between the two interventions and there is no statistically significant difference between these subgroups.

Effect of training on secondary outcomes

Adverse events

Adverse events were not reported systematically in the included trials.

Mead 2007 reported 11 falls in eight of the 32 participants allocated mixed training and five falls in four of the 34 participants in the control group (P = 0.21, non-significant). None of these falls occurred within training sessions.

van de Port 2012 reported 29 falls in 126 participants allocated mixed training and 26 falls in those allocated usual care (P = 0.93 non-significant); one fall occurred during exercise training.

Ten of the included trials provided some comments on participant tolerance of the training programme and did not report any adverse events such as falls, fractures, or injuries arising during the intervention.

Considering all included trials, 10 participants (seven participants receiving the training intervention and three control participants) were reported to have suffered a cerebrovascular event between baseline and the end of the training intervention.

In the 17 trials that included a follow-up assessment, 10 participants (four participants receiving the training intervention and six control participants) were reported to have suffered a stroke or cerebrovascular event between the end of intervention and the end of follow-up.

Three participants (one participant receiving the training intervention and two control participants) were also reported to have suffered a cardiovascular event between baseline and the end of the training intervention.

Vascular risk factors

Few data regarding modification of risk factors for cardiovascular and cerebrovascular events were available in the included trials. Four trials, with a total of 267 participants, showed no significant training effects on systolic (MD 0.40 mmHg, 95% CI -8.38 to 9.18; 0.93; Analysis 1.6) or diastolic blood pressure (MD -0.33 mmHg, 95% CI -2.97 to 2.31; P = 0.81; Analysis 1.7) at the end of intervention (da Cunha 2002; Katz-Leurer 2003; Lennon 2008; Potempa 1995).

One trial stated that there was an effect of cardiorespiratory training on blood pressure but did not present data (Ivey 2011).

It should be noted that the peak VO_2 values are discussed in the next section as a cardiorespiratory fitness outcome; however, low values of peak VO_2 are also a vascular risk factor (for cardiovascular and cerebrovascular events) and are therefore also relevant to this section.

Physical fitness

Cardiorespiratory training (Comparisons 1 and 2)

Cardiorespiratory fitness was assessed in seven trials (247 participants) using measures of peak VO_2 (ml/kg/minute) at the end of the intervention. Most of the studies took place after usual care and there was a consistent pattern of improvement in measures of peak VO_2 showing that cardiorespiratory fitness increased significantly in the training group (MD 2.46 ml/kg/minute, 95% CI 1.12 to 3.80; P = 0.0003; Analysis 1.8). Doses of training vary between four weeks and six months among the trials.

VO_2 cost assessed during the 12-minute walking test in Moore 2010 did not show any significant training effect at the end of intervention (Analysis 1.9).

Similarly, in four trials that measured maximal cycling work rate at the end of intervention during (Bateman 2001; da Cunha 2002) and after (Katz-Leurer 2003; Potempa 1995) usual care, cardiorespiratory fitness improved significantly in participants who received the training intervention (SMD 0.60, 95% CI 0.18 to 1.02; P = 0.005; Analysis 1.10). The large number of dropouts in Bateman 2001 means these data are at risk of bias. When it is excluded all statistical heterogeneity disappears and the overall effect is strengthened (SMD 0.84, 95% CI 0.49 to 1.18; P < 0.00001).

Results from Bateman 2001 showed that the improvement measured by maximal cycling work rate was not maintained at follow-up (MD 5.11, 95% CI -18.93 to 29.15; Analysis 2.7).

Resistance training (Comparisons 3 and 4)

Two trials with a total of 30 participants assessed the effects of resistance training on a composite measure of muscle strength at the end of intervention, during and after usual care (Kim 2001; Winstein 2004). Kim 2001 used a composite measure (that is the

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sum of the percentage change in six muscle groups) to assess the strength of the lower limbs, while Winstein 2004 used a composite measure (that is the sum of the torque of the extensors and flexors of the wrist, elbow, and shoulder) to assess the strength of the upper limbs. The pooled estimate of effect was only marginally in favour of the resistance training group (SMD 0.58, 95% CI 0.06 to 1.10; P = 0.03; Analysis 3.2). However, Winstein 2004 was biased by the lack of blinding and the use of a dynamometer which was hand-held by the investigator, and confounded by increased training time in the intervention group.

Two trials with a total of 42 participants assessed the effects of training on knee muscle strength measured with a dynamometer at the end of intervention during (Bale 2008) and after (Flansbjer 2008) usual care but did not detect any significant training effect on either knee extension (Analysis 3.3) or knee flexion (Analysis 3.4). Follow-up data were available for only one of these two trials (Flansbjer 2008) and did not show any significant training effect over time (Analysis 4.2; Analysis 4.3).

Ouellette 2004 examined strength bilaterally in the lower limb extensors and unilaterally in the knee extensors and the ankle flexors (plantar and dorsi). All strength measures were reported to improve significantly after resistance training compared with the control group except for ankle dorsiflexion on the unaffected side. This study also suggested that peak power was improved during unilateral knee extensions but not during bilateral extension of the whole lower limb. However, as strength and power data were presented as graphs, we were not able to extrapolate them satisfactorily for further analyses.

Inaba 1973 reported that participants allocated to resistance training of the lower limbs achieved significantly greater gains in the 10-repetition maximum exercise compared with controls (12.18 versus 8.58 kg, P < 0.02) after one month of intervention. No significant differences were observed between groups after two months of training. No measures of variance were reported by this trial and therefore we were not able to include these data in our analyses.

Aidar 2012 reported significant gains in maximal strength (1-repetition maximum) in a range of upper and lower body muscle groups after resistance training compared with the control group. Overall, meta-analysis of muscle strength data is awkward because so many different muscles groups can be assessed using a range of different equipment and muscle contraction types.

Mixed training (Comparisons 5 and 6)

Based on the results of two individual trials a small significant difference was observed in VO_2 peak (Duncan 2003) and in gait economy (Mead 2007: net VO_2 mL/kg per metre) at the end of intervention in participants who received mixed training (Analysis 5.11; Analysis 5.12). The benefit in gait economy, however, disappeared after a three-month follow-up (Analysis 6.7).

Toledano-Zarhi 2011 reported no effect of mixed training on walking performance (time or METS) during a Modified Bruce treadmill protocol.

Two trials with a total of 148 participants (Duncan 2003; Yang 2006) did not show any significant improvement in ankle dorsiflexion strength after mixed training (Analysis 5.13) but there was considerable heterogeneity between their results (Chi^2 17.67, df = 1) and both trials were confounded by increased training time. Yang 2006 also reported a range of lower limb strength improvements, but all measurements were potentially biased as they were obtained by means of a hand-held dynamometer, which is not a reliable, objective method of measurement.

The same two trials also assessed the effect of mixed training on knee extension strength. Data for knee extension strength were also available from the Cooke 2010 trial. The pooled SMD indicated a small effect size in favour of the mixed training group at the end of intervention (SMD 0.33, 95% CI 0.05 to 0.61; P = 0.02; Analysis 5.14). Cooke 2010 showed that this training effect was not retained at the end of the scheduled follow-up (Analysis 6.9). Cooke 2010 also assessed knee flexion strength but no significant training effect was observed either at the end of intervention or at follow-up (Analysis 5.15; Analysis 6.8).

Donaldson 2009 assessed the effect of mixed training on elbow extension, elbow flexion, and grip force at the end of intervention but did not detect any significant training effect (Analysis 5.16; Analysis 5.17; Analysis 5.18).

Mead 2007 assessed the extensor power of the lower affected limb at the end of the training period and at follow-up but found no differences between mixed training and a 'non-exercise' control intervention (Analysis 5.20; Analysis 6.10).

The pooled results of two trials assessing grip strength of the paretic hand (Duncan 2003; Langhammer 2007) did not show any significant improvement after mixed training at the end of the intervention phase (SMD -0.05, 95% CI -0.36 to 0.26; P = 0.75; Analysis 5.19). Langhammer 2007 also provided follow-up data for grip strength, which failed to demonstrate any training effect over time (Analysis 6.11).

Mobility

Cardiorespiratory training (Comparisons 1 and 2)

Functional Ambulation Category

Two trials, which included three relevant comparisons and 73 participants, measured the effect of treadmill gait training using the Functional Ambulation Category (FAC) scale (da Cunha 2002; Pohl 2002). The pooled MD showed that the FAC score measured at the end of intervention was significantly better in stroke survivors who received cardiorespiratory training during usual care (MD 0.53, 95% CI 0.21 to 0.85; P = 0.001; Analysis 1.11).

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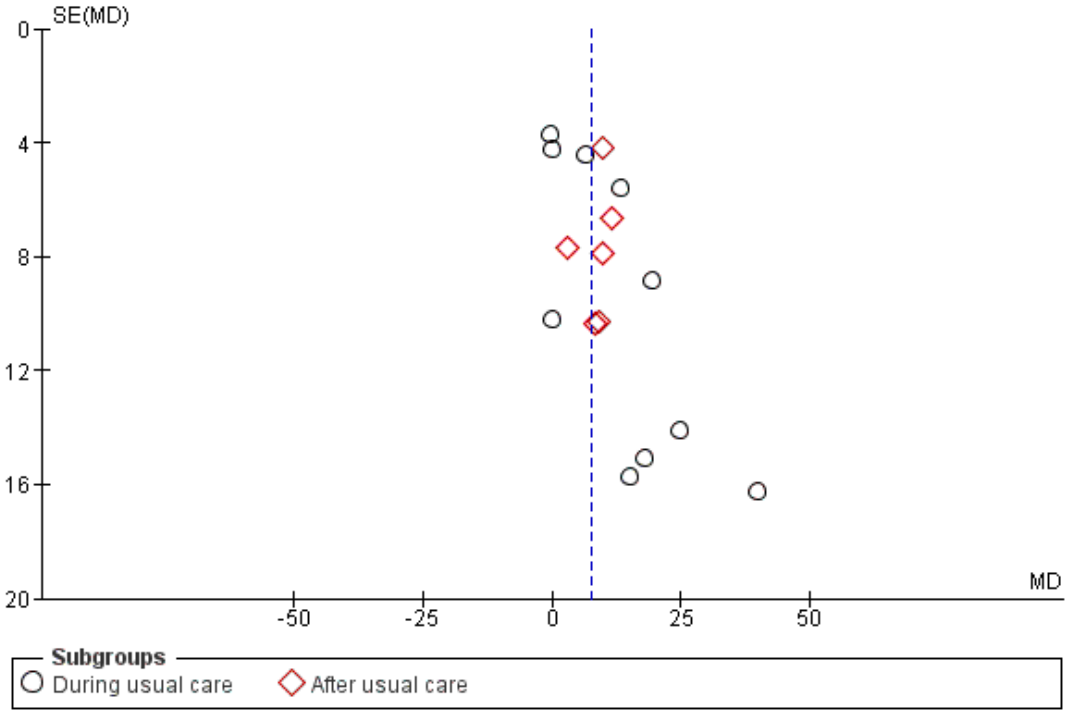
Maximum walking speed (MWS)

Thirteen trials with a total of 709 participants measured maximum walking speed (metres per minute) at the end of intervention. The mode of cardiorespiratory training in all these trials was walking-specific apart from two trials that used cycle ergometry (Bateman 2001) and circuit type-training (Mudge 2009) respectively. The pooled mean difference was significantly in favour of the training group (MD 7.37 m/min 95% CI 3.70 to 11.03; P < 0.0001; Analysis 1.12). This analysis also shows a consistent effect across the studies as a whole and a similar magnitude of effect arising from training delivered during or after usual care. The Bateman 2001 data are not walking-specific and are problematic due to high dropout rates; if the data are excluded heterogeneity is reduced and the confidence in the treatment effect strengthened. If the longer trials are also excluded (longer than 12 weeks; Ada 2013; Globas 2012) there is little change.

A funnel plot of the 13 studies (including 16 relevant comparisons) that measured maximum walking speed showed a tendency toward asymmetry, suggesting potential publication bias during but not after usual care (Figure 4).

Figure 4. Funnel plot of comparison: 1 Cardiorespiratory training versus control - end of intervention, outcome: 1.12 Mobility - maximal gait speed (m/min over 5 to 10 metres).



Five trials (312 participants) also provided follow-up data on maximum walking speed and a significant training effect was observed at the end of follow-up (MD 6.71 m/min 95% CI 2.40 to 11.02; P = 0.002; Analysis 2.8). Although the overall effect is consistent the two comparisons of Ada 2013 show the smallest effect. Ada 2013 used a 12-month follow-up whilst all the others used a three-month follow-up period. If the data are excluded heterogeneity is reduced and the confidence in the treatment effect strengthened.

Preferred walking speed (PWS)

Eight trials measured the preferred gait speed (metres per minute) in a total of 425 stroke survivors at the end of the training period during and after usual care. The mode of cardiorespiratory training in all these trials was walking-specific apart from one trial (Katz-Leurer 2003) which used cycle ergometry. The pooled mean difference indicated a significant training effect (MD 4.63 m/min 95% CI 1.84 to 7.43; P = 0.001; Analysis 1.13). The majority

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of the interventions contributing to this effect took place after usual care. There is a consistent effect even though dose of training varies.

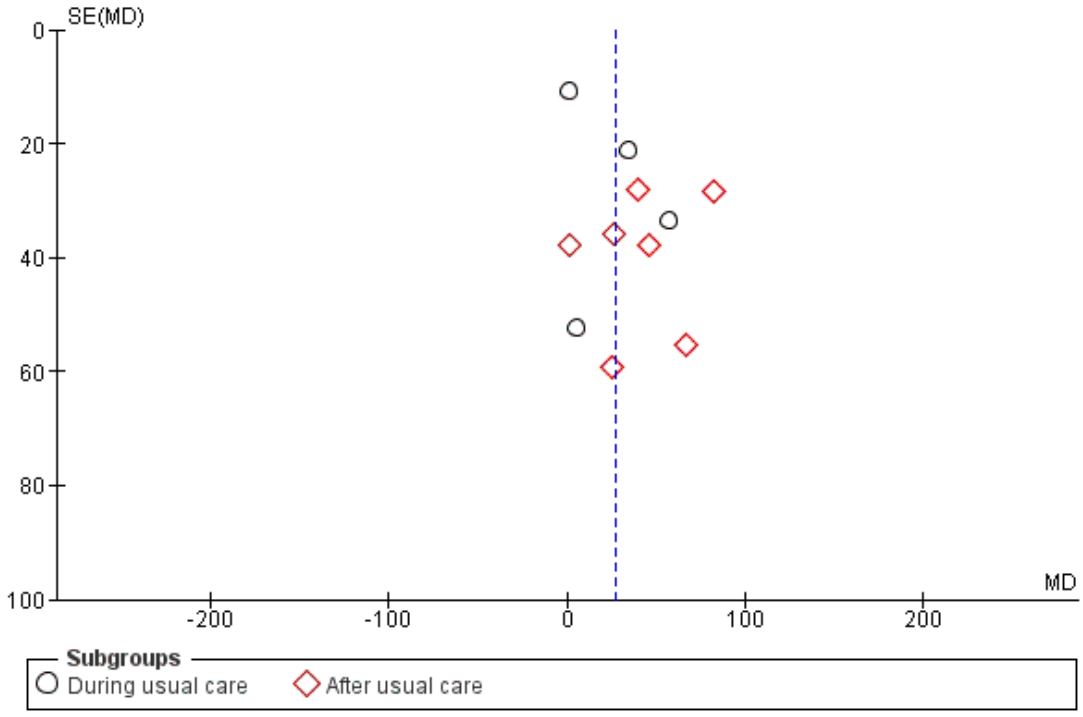
Two trials provided follow-up data three months (Kuys 2011) and 12 months (Ada 2013) after the intervention. Pooling these data shows no evidence of retention (Analysis 2.9).

Six-Minute Walking Test (6-MWT)

Ten trials assessed walking endurance using the six-minute walking test (total metres walked in six minutes: 6-MWT) in a total of 468 stroke survivors. Cardiorespiratory training significantly increased the walking capacity at the end of intervention (MD 26.99 metres, 95% CI 9.13 to 44.84; P = 0.003; Analysis 1.14). The majority of the interventions contributing to this effect took place after usual care and these include longer interventions (longer than 12 weeks). The subgroup of trials before usual care were shorter (four to six weeks) and show no significant effect.

A funnel plot of the 10 studies (including 11 relevant comparisons) that measured 6-MWT showed no evidence of asymmetry, suggesting no publication bias (Figure 5).

Figure 5. Funnel plot of comparison: 1 Cardiorespiratory training versus control - end of intervention, outcome: 1.14 Mobility - gait endurance (6-MWT metres).



Four trials provided follow-up data three months (Eich 2004; Kuys 2011; Mudge 2009) and 12 months (Ada 2013) after the intervention. When pooled these data show no evidence of retention (MD 33.37 metres, 95% CI -8.25 to 74.99; P = 0.12; Analysis 2.10). However, exclusion of the 12-month follow-up data of Ada 2013 reveals consistent retention among the three trials with a three-month follow-up (MD 64.60 metres, 95% CI 29.87 to 99.32; P = 0.0003).

Other mobility outcomes

Similar to the 6-MWT data, three trials measured walking endurance (reported as metres per minute) in 154 stroke survivors at the end of intervention, during (da Cunha 2002; Eich 2004) and after (Salbach 2004) usual care. Walking capacity increased significantly in participants who received cardiorespiratory training (MD 8.87 metres/min, 95% CI 1.35 to 16.40; P = 0.02; Analysis

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1.15).

Glasser 1986 measured the time taken by stroke participants to walk a six metre distance and did not find any significant difference between participants who received Kinetron walking training and controls (Analysis 1.16).

Park 2011 reported time taken for the community walk test. There was no difference between participants who received community ambulation training and controls at the end of intervention (Analysis 1.18).

Smith 2008 assessed the effect of cardiorespiratory training using the mobility domain of the Stroke Impact Scale (SIS). SIS scores were similar between intervention groups at the end of the intervention and at follow-up (Analysis 1.17; Analysis 2.13).

It is worth noting that six trials, which assessed walking outcomes, were confounded by additional training time in the intervention groups (Ada 2013; Katz-Leurer 2003; Kuys 2011; Moore 2010; Park 2011; Smith 2008).

Resistance training (Comparisons 3 and 4)

Maximal walking speed (MWS)

Four trials with a total of 104 participants measured maximal walking speed (metres per minute) during (Bale 2008) and after (Flansbjer 2008; Kim 2001; Ouellette 2004) usual care. Overall, resistance training did not increase the walking velocity at the end of intervention (MD 1.92 m/min, 95% CI -3.50 to 7.35; Analysis 3.5). There was, however, definite heterogeneity between trial results (Chi^2 = 7.76, df = 3, P = 0.05). The heterogeneity was mainly due to the results of one trial (Bale 2008) that involved specific walking-related exercises and, in contrast to the results of the other three trials, showed a significant training effect during usual care (MD 8.40 m/min, 95% CI 2.82 to 13.98). Follow-up data were available from one trial only (Flansbjer 2008) and did not show any significant training effect (Analysis 4.4).

Preferred walking speed (PWS)

Three trials with a total of 80 participants also measured preferred gait speed (metres per minute) during (Bale 2008) and after (Kim 2001; Ouellette 2004) usual care but failed to demonstrate any effect of resistance training on walking speed at the end of intervention (MD 2.34 m/min, 95% CI -6.77 to 11.45; Analysis 3.6). Heterogeneity between results (Chi^2 = 9.18, df = 2, P = 0.01) was again attributable to the results of the Bale 2008 trial.

Six-Minute Walking Test (6-MWT)

Two trials assessed the walking capacity (metres walked in six minutes) in a total of 66 stroke survivors (Flansbjer 2008; Ouellette 2004). Resistance training did not have any significant effect on walking capacity at the end of intervention (MD 3.78, 95% CI -68.56 to 76.11; level of heterogeneity Chi^2 = 0.00, df = 1, P = 0.99; Analysis 3.7). One trial (Flansbjer 2008) provided follow-up data that confirmed the lack of training effect on walking capacity at the end of follow-up (Analysis 4.5).

Mixed training (Comparisons 5 and 6)

Functional ambulation categories

One trial (van de Port 2012) examined the effects of mixed training on Functional Ambulation Category scores and showed no effect at the end of intervention (Analysis 5.21) and borderline beneficial effect after a follow-up of three months (MD 0.11, 95% CI 0.00 to 0.22; P = 0.05; Analysis 6.12).

Preferred walking speed (PWS)

Nine studies with a total of 639 participants measured the effects of mixed training on preferred walking speed (metres per minute). The walking speed increased at the end of intervention in stroke survivors who received mixed training (MD 4.54 m/min, 95% CI 0.95 to 8.14; P = 0.01; Analysis 5.22). The effect is influenced mostly by data from interventions delivered after usual care and there is significant heterogeneity within the after usual care subgroup (Chi^2 = 34.39, df = 5, P < 0.00001). Only the interventions in three of the nine studies (Mead 2007; Richards 1993; Richards 2004) are not confounded by additional training time and show no effect.

Subgroup analysis of trials in which the experimental group was confounded by additional training time showed a significant difference in favour of mixed training (MD 6.32 metres/min, 95% CI 1.08 to 11.55; P = 0.02; Analysis 5.23) whilst those not confounded by additional training time did not (MD 0.49 metres/min, 95% CI -2.96 to 3.94; P = 0.78). The confounded data show significant heterogeneity (I^2 = 85%; P < 0.001) whilst the unconfounded data do not (I^2 = 8%; P = 0.34).

A funnel plot that was generated using continuous measures for preferred walking speed at the end of intervention did not suggest the presence of publication bias as its shape did not show gross asymmetry (Figure 6).

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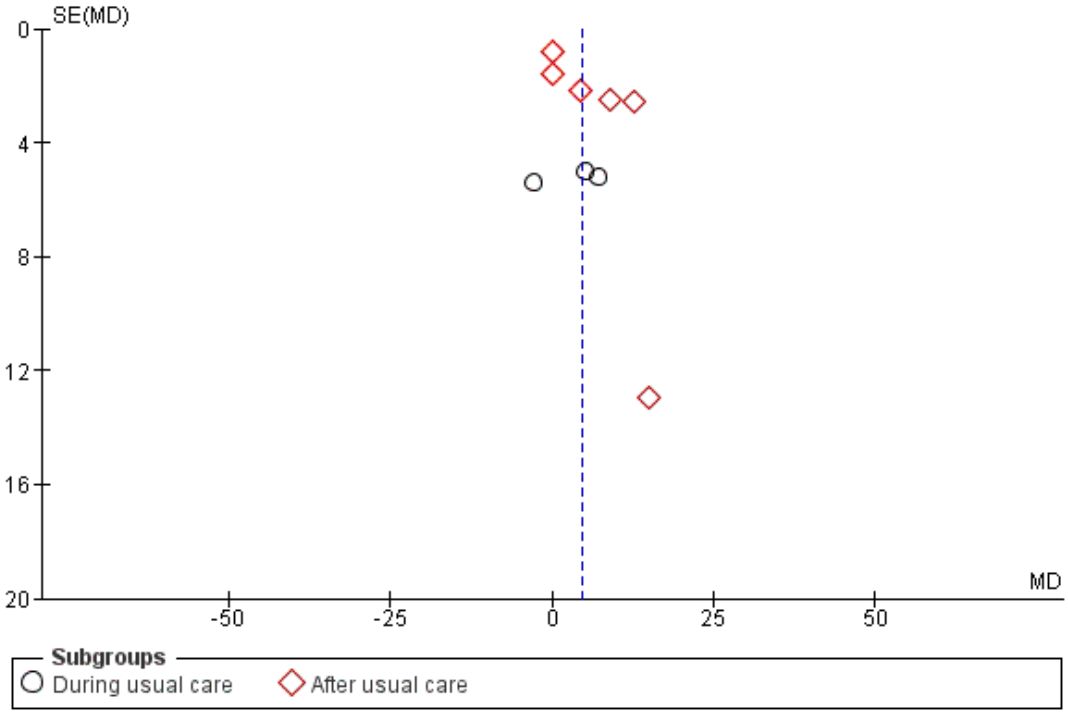
Figure 6. Funnel plot of comparison: 5 Mixed training versus control - end of intervention, outcome: 5.22 Mobility - preferred gait speed (m/min).



Four trials that provided follow-up data for preferred gait speed did not show a significant training effect at the end of the scheduled follow-up (Analysis 6.13).

One study showed some indication of dose-response, where the improvement in preferred gait speed was positively associated with the amount of time spent on the gait training component (R^2 = 0.63; Richards 1993).

Six-Minute Walking Test (6-MWT)

Seven trials measured the walking capacity (metres walked in six minutes) in a total of 561 participants. Walking capacity increased significantly in the mixed training group (MD 41.60 metres, 95% CI 25.25 to 57.95; P < 0.00001; Analysis 5.24). Two trials included a follow-up and showed that walking capacity remained significantly greater in the groups who had participated in training (MD 51.62 metres, 95% CI 25.20 to 78.03; P = 0.0001; Analysis 6.14).

It is worth noting, however, that in all trials in this analysis the intervention groups were confounded by additional training time, which could exaggerate the effect.

Other mobility outcomes

Three trials measured community ambulation speed (the ability to walk at 0.8 metres per second or more) in a total of 232 participants during (Cooke 2010) and after (Duncan 2003; Mead 2007) usual care. No significant training effects were observed either at the end of intervention (Analysis 5.25) or at follow-up (Analysis 6.15).

Comparison of cardiorespiratory, resistance training, and mixed training (Comparison 7)

We performed a subgroup analysis to compare the effects of the different types of training (cardiorespiratory training versus mixed training versus resistance training) on mobility outcomes at the end of intervention.

- Maximal walking speed increased significantly after cardiorespiratory training but not after resistance training (Analysis 7.2). No mixed training data are available for this outcome.
- Preferred walking speed increased significantly after cardiorespiratory and mixed training but not after resistance (Analysis 7.3). Excluding trials that were potentially confounded

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by additional training time; only cardiorespiratory training showed a significant training effect.

- Gait endurance (6-MWT) increased significantly after cardiorespiratory, and particularly mixed training, but not after resistance training (Analysis 7.4). All mixed training trials are confounded by additional training time.

Physical function

The included trials assessed participants' physical function using a variety of different measures including rating scales (for example Berg Balance Scale) and specific measures of functional performance (for example functional reach, timed up and go test, stair climbing).

Cardiorespiratory training (Comparisons 1 and 2)

Six trials with a total of 257 participants assessed the effects of cardiorespiratory training on balance using the Berg Balance Scale. There was a significant improvement in the scores (MD 3.14, 95% CI 0.56 to 5.73; P = 0.02; Analysis 1.20). All trials except Bateman 2001 (no effect) involved walking. The Bateman 2001 data are also at risk of bias; if the data are excluded the effect is strengthened (MD 4.26, 95% CI 1.29 to 7.24; P = 0.005). The backwards walking group of Takami 2010 appeared to produce a larger (non-significant) benefit compared with the forwards walking group from the same trial. One trial (Bateman 2001) also assessed participants at the end of the follow-up period but did not show any training effect over time (Analysis 2.14).

Three trials (Kang 2012; Moore 2010; Salbach 2004) that measured the performance of a total of 131 participants during the timed up and go test did not show any specific benefits of training at the end of the intervention after usual care (Analysis 1.21).

Resistance training (Comparisons 3 and 4)

One trial (Bale 2008) assessed the maximum weight-bearing on the affected leg (% body weight). A small training effect was observed in the resistance training group compared with the usual rehabilitation group (MD 11.80, 95% CI 0.89 to 22.71; Analysis 3.8).

Two trials (Kim 2001; Ouellette 2004) did not find any significant differences between intervention groups in the time needed to ascend a 10-stair flight at the end of the training period (MD -0.04, 95% CI -0.86 to 0.77; Analysis 3.9).

Another trial (Flansbjer 2008) measured the participants' performance of the timed up and go test but failed to demonstrate any significant training effect either at the end of intervention (Analysis 3.10) or at follow-up (Analysis 4.6).

Mixed training (Comparisons 5 and 6)

Balance outcomes

Five trials with a total of 239 participants assessed the participants' balance using the Berg Balance Scale. Scores show a tendency for beneficial improvements in balance at the borderline of statistical significance (MD 0.32, 95% CI 0.00 to 0.65; P = 0.05; Analysis 5.26). Follow-up data from two trials did not show any significant training effect (Analysis 6.16).

Two trials (Duncan 2003; Mead 2007) with a total of 166 participants measured balance using the functional reach test but did not show any benefit of mixed training at the end of intervention (Analysis 5.27). One trial also provided follow-up data (Mead 2007), which did not show persistence of any training effect beyond the duration of intervention.

One trial measured balance using the Four Square Step Test (Toledano-Zarhi 2011) and found no significant effect at the end of intervention (Analysis 5.28); however these data are very different at baseline in a way which benefits the control group.

One trial measured balance using the timed balance test (van de Port 2012) and showed a beneficial effect of training at the end of intervention (MD 0.32, 95% CI 0.06 to 0.58; P = 0.02; Analysis 5.29) and after a three-month follow-up (MD 0.46, 95% CI 0.09 to 0.83; P = 0.02; Analysis 6.18).

There were sufficient data among the different measures of balance used (eight trials, 575 participants) to be legitimately pooled. This showed an overall beneficial improvement in balance at the end of intervention (SMD 0.26, 95% CI 0.04 to 0.49; P = 0.02; Analysis 5.30). If the problematic data of Toledano-Zarhi 2011 are excluded the effect strengthens and any evidence of heterogeneity disappears (SMD 0.33, 95% CI 0.16 to 0.50; P = 0.0001). However, five of the eight included trials were confounded by additional training time; when these data are excluded, leaving only Mead 2007, Richards 1993 and Richards 2004, there is no effect of training on balance.

Other outcomes

Four trials measured the time to complete the timed up and go test in a total of 418 participants (Mead 2007; Richards 2004; van de Port 2012; Yang 2006). Participants in the training group were faster than those in the control group (MD -1.37 sec, 95% CI -2.26 to -0.47; P = 0.003; Analysis 5.32) at the end of the mixed training phase. The Yang 2006 and van de Port 2012 data were, however, confounded by additional training time. After removal of these data from the analysis no significant training effect was evident (MD -1.13 seconds, 95% CI -2.91 to 0.65; Analysis 5.33). Follow-up data in three trials (Mead 2007; Richards 2004; van de Port 2012) did not show a significant retention of mixed training benefits (Analysis 6.19).

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One trial assessed upper extremity functional performance using the Action Research Arm test (Donaldson 2009). No significant training effects were observed (Analysis 5.31).

Comparison of cardiorespiratory, resistance training, and mixed training (Comparison 7)

We performed a subgroup analysis to directly compare the effects of the different types of training (cardiorespiratory training versus mixed training versus resistance training) on the Berg Balance Scale at the end of intervention (Analysis 7.5). There was an overall beneficial effect of cardiorespiratory and mixed training on balance and whilst the significant effect is within the cardiorespiratory subgroup, the magnitude of effect was similar with no statistically significant difference between the subgroups.

Health status and quality of life

Cardiorespiratory training (Comparisons 1 and 2)

One trial assessed the effects of cardiorespiratory training on measures of quality of life, in 28 participants (Aidar 2007). Both the SF-36 physical component score and the SF-36 emotion score were significantly better at the end of the training period in participants who underwent cardiorespiratory training (Analysis 1.24; Analysis 1.25).

One trial (Globas 2012) examined effects of cardiorespiratory training on the SF-12 and showed a significant improvement in the mental health domain (MD 9.30, 95% CI 4.31 to 14.29; P = 0.0003; Analysis 1.26) but not the physical health domain (Analysis 1.27).

One trial (Ada 2013) examined effects on EuroQoL scores showing no effect at the end of intervention (Analysis 1.28). There was also no effect after a 12-month follow-up although the effect approaches statistical significance (Analysis 2.15).

Resistance training (Comparisons 3 and 4)

One small trial of 20 participants (Kim 2001) did not show any significant differences between the resistance training group and the control group in either the physical health or mental health component of the SF-36 at the end of intervention (Analysis 3.11; Analysis 3.12).

Mixed training (Comparisons 5 and 6)

One trial (Cooke 2010) measured the effects of mixed training on quality of life in 50 participants using two components of the EuroQol scale. Scores were not significantly different between intervention groups at the end of the training phase (Analysis 5.34; Analysis 5.35) or at follow-up (Analysis 6.20; Analysis 6.21).

A few trials assessed the effects of mixed training on quality of life using different components of the SF-36 survey questionnaire. In two trials with a total of 112 participants (Duncan 2003; James 2002) significantly better scores were obtained in the SF-36 physical functioning component in the mixed training group at the end of intervention (SMD 0.48, 95% CI 0.10 to 0.85) (Analysis 5.36) but not in the social role functioning component (Analysis 5.37). Three trials with a total of 178 participants (Duncan 2003; James 2002; Mead 2007) showed significantly better scores in the SF-36 physical role functioning component for the mixed training group at the end of intervention (SMD 0.56, 95% CI 0.26 to 0.86; Analysis 5.38). This effect was retained at follow-up (Analysis 6.23).

One trial (Duncan 2003) showed that participants receiving mixed training had significantly better results in the emotional role functioning component of the SF-36 compared with controls at the end of the training period (Analysis 5.39) but not at follow-up (Analysis 6.24).

One trial (Zedlitz 2012) assessed the effect of mixed training on the Stroke-Adapted Sickness Impact profile and showed no effect at the end of intervention (Analysis 5.40) or end of six-month follow-up (Analysis 6.25).

It is worth noting that in the Duncan 2003, James 2002 and Zedlitz 2012 trials the intervention group was potentially confounded by additional training time.

Mood

Cardiorespiratory training (Comparisons 1 and 2)

One trial (Smith 2008) assessed the potential benefits of cardiorespiratory training on depression symptoms using the Beck Depression Index. No significant differences were found between intervention groups at the end of intervention (Analysis 1.29) and at follow-up (Analysis 2.16).

One trial (Bateman 2001) assessed participants using the anxiety and depression components of the Hospital Anxiety and Depression Scale (HADS). The anxiety score decreased immediately after cardiorespiratory training (MD -1.94, 95% CI -3.80 to -0.08; Analysis 1.30) but this small benefit was not retained at the follow-up assessment (Analysis 2.17). In contrast, the depression score was not significantly different between groups at the end of the training phase (Analysis 1.31) but decreased significantly in the cardiorespiratory group at the end of the follow-up period (MD -2.70, 95% CI -4.40 to -1.00; Analysis 2.18). This trial had, however, substantial missing values at the end of intervention (29%) and end of follow-up (37%) and therefore these findings should be interpreted with caution. Another trial (Lennon 2008), which measured participants' mood using the HADS, reported that the depression score improved in the intervention group but not in the control group. We were, however, unable to include these trial data in our analyses as they were presented in a format not suitable for RevMan 2012.

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Resistance training (Comparisons 3 and 4)

One trial (Sims 2009) assessed 88 participants using the Centre for Epidemiological Studies for Depression scale (CES-D). The mood in the resistance training group was significantly better at the end of intervention (MD -5.49, 95% CI -9.78 to -1.20; Analysis 3.13) and at follow-up (MD -8.92, 95% CI -13.03 to -4.81; Analysis 4.7).

One trial (Aidar 2012) used the Brazilian translation of the State-Trait Anxiety Inventory and showed no effect on either trait anxiety (Analysis 3.14) or state anxiety (Analysis 3.15) at the end of intervention.

Mixed training (Comparisons 5 and 6)

Two trials (Duncan 2003; van de Port 2012) assessed mood in 335 participants using the emotion domain of the Stroke Impact Scale (SIS) and showed no significant effect at the end of intervention (Analysis 5.41) or after three-month follow-up (Analysis 6.26).

One trial (Duncan 2003) showed improvements in Geriatric Depression Scale scores at the end of intervention (MD -1.90, 95% CI -3.10 to -0.70; P = 0.002; Analysis 5.42) but not the end of follow-up (Analysis 6.27).

Three trials (Mead 2007; van de Port 2012; Zedlitz 2012) assessed 391 participants using the anxiety and depression components of the Hospital Anxiety and Depression Scale (HADS). No immediate training effects were observed on either HADS component at the end of the intervention (Analysis 5.43; Analysis 5.44). However the effect size for depression showed a tendency to favour the control group which approached statistical significance (P = 0.08). No retained training effects were observed on either HADS component at the end of follow-up (Analysis 6.28; Analysis 6.29).

DISCUSSION

The included trials encompassed a variety of outcome measures. This has been a typical drawback of stroke rehabilitation trials for some time (Greener 2002) and continues to be a problem when summarising and combining data in a systematic review.

Effect of training on primary outcome measures

Case fatality

Death, from any cause, is not a common event among the participants of the trials included in this review. Only nine out of the total 2215 participants died before the end of the intervention period and nine out of 1206 died before the end of follow-up.

Where deaths did occur there may be a tendency toward these being more common among the control groups rather than the intervention groups of mixed training trials. However, there are still too few data to draw any conclusions about the effect of fitness training on case fatality.

The observed numbers of deaths in this review may be low because the included participants were at lower risk of death compared with the wider stroke population. This may occur firstly because the inclusion criteria of the trials of exercise select participants with milder strokes (most were ambulatory) and reduced risk factors (such as blood pressure ceiling criteria). Secondly, there may be self selection by participants who are physically active with increased fitness. Higher physical activity is known to be associated with reduced risk of stroke (Lee 2003; Wendel-Vos 2004) and higher VO_2 peak is associated with reduced risk of stroke (Kurl 2003) and mortality (Lee 2002). In addition, the majority of the training programs in this review were of short duration (12 weeks or less). A Cochrane Review of the effect of exercise-based cardiac rehabilitation showed reduced mortality in people with coronary heart disease in the longer term (12 months follow-up and more; Heran 2011); the training programs tended to be much longer than those in this review. Since many stroke patients have coexisting heart disease, training might influence post-stroke mortality provided it comprises cardiorespiratory training delivered over long periods of time. This requires investigation.

Although higher physical activity and cardiorespiratory fitness are linked to the primary prevention of stroke, there is a lack of data on the role of fitness training in the secondary prevention of stroke. This requires further investigation.

Death or dependence

There were no data available to allow us to draw conclusions about the influence of training on the composite outcome of death or dependence after stroke. Death is infrequent and measures of dependency such as those based on simple questions, a Barthel Index score of less than 20, or modified Rankin Scale score of 3, 4, or 5, are lacking (Lindley 1994). Both elements of this composite outcome are likely to be rare in stroke survivors who are eligible for physical fitness training.

Disability

We assessed a number of different global indices of disability. Data using the same scales were limited and this restricted the meta-analyses, and a number of methodological issues weakened and biased the available data.

After cardiorespiratory training there was no improvement in FIM scores (Analysis 1.2) but there was an improvement in Rivermead Mobility Index scores (Analysis 1.3). Pooling all available disability scale data from different scales showed a small beneficial effect (SMD; Analysis 1.5). This pattern of findings could occur because training influences the physical/mobility items of these various scales; such items dominate the scoring in tools like the Rivermead Mobility Index (eight out of 15 items) whereas they

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are less influential in more 'global' tools like the FIM (two out of 18 items). Use of walking as a mode of cardiorespiratory exercise is common, therefore these findings could be driven by improvements in walking and mobility.

In trials of mixed training various disability measurement instruments were used. Among these the only significant improvements were in Rivermead Mobility Index scores, both at the end of training (Analysis 5.4) and retained after a period of follow-up (Analysis 6.5). Pooling all available data from different scales shows a hint of benefit at the end of intervention (Analysis 5.8). Like cardiorespiratory training these significant effects could be driven principally by changes in mobility. The study designs of several of the mixed training trials were confounded by additional training time; when these were excluded the benefits vanish. This means that although participation in mixed training appeared effective it is impossible to attribute any benefits to the actual content of the mixed training programs.

The overall effects of cardiorespiratory training and mixed training at the end of intervention are similar in magnitude (Analysis 7.1). There are too few data to allow for any comment on the effect of resistance training.

Lack of benefits among many of the disability tools may arise from a lack of sensitivity due to the recruitment of people typically presenting with milder strokes. There was evidence of ceiling effects in the Barthel Index data from two trials (Bateman 2001; Duncan 1998). Similarly, the Functional Independence Instrument, which was assessed in some of the included studies, is known to be prone to ceiling effects, particularly in community-living patients (Hall 1996). Thirdly, a lack of effect on disability measures despite functional benefits has been reported in trials of exercise for healthy elderly people (Keysor 2001).

It is worth pointing out that a lack of an immediate effect does not necessarily preclude longer-term benefits. Increased fitness may provide some 'reserve capacity' to cope with the deterioration of function that will occur with increasing age and thus postpone crossing 'thresholds of independence' (Young 2001). Therefore, indicators of pre-clinical disability (Fried 1996) coupled with long-term follow-up may be a more useful approach for assessing outcomes in trials of fitness training after stroke.

Overall, the small benefits after cardiorespiratory and mixed training detected using scale-based measures of disability may be driven by improvements in mobility rather than being indicative of a change in more 'global' disability status. This would agree with the findings among the secondary outcomes (mobility).

Effect of training on secondary outcome measures

Adverse events

There was no evidence of any serious adverse event arising from training in people who participated in physical fitness training programs. However, this finding cannot be generalisable to the wider stroke population as only a few trials specifically recorded or reported adverse events. There is a clear need to improve the reporting of adverse events in physical fitness training trials.

Vascular risk factors

A few trials reported vascular risk factors. There was no effect on blood pressure but there was an increase in peak VO_2. As well as indicating poor cardiorespiratory fitness, low values of peak VO_2 peak are associated with an increased risk of stroke (Kurl 2003) and stroke mortality (Lee 2002). Limited data meant that no conclusions could be drawn. Blood pressure is rarely reported among trials of fitness training and yet it could be an important, plausible benefit.

Physical fitness

Cardiorespiratory fitness

Cardiorespiratory training, and to a smaller degree mixed training, significantly improved VO_2 peak and exercise tolerance during continuous exercise. This improvement may be beneficial because a low VO_2 peak is associated with functional limitation in elderly people (Young 2001). In people with stroke the functional benefits are, however, less clear (see for example the contradictory data by Patterson 2007 and Michael 2007).

Gait economy may improve in response to training that contains walking activity. A limited 'fitness reserve' caused by a low VO_2 peak coupled with poor walking economy is a common post-stroke problem (Macko 2001). Therefore, training to improve walking economy and increase the peak may be beneficial for walking performance and exercise tolerance after stroke. Only few, inconsistent data were available for the assessment of gait economy. Data from one individual trial (Mead 2007) suggested that mixed training may improve gait economy at the end of the training period even though this training effect appeared to disappear at follow-up. On the whole, the data were insufficient to draw reliable conclusions on the effect of training on gait economy as well as on the post-training retention of cardiorespiratory fitness.

Musculoskeletal fitness

The few trials that assessed whether resistance training or mixed training improved muscle strength after stroke show inconsistent results. Most of the trials that showed positive training effects were either methodologically biased or confounded by additional training time.

One individual trial (Mead 2007) measured explosive lower limb extensor power but showed no immediate or retained effect of

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mixed training. Non-response could be due to a lack of explosive, fast movements during resistance training. In people with stroke, explosive power is associated with function and disability after stroke (Saunders 2008), and in elderly people explosive power output may be more important than strength for function and disability (Puthoff 2007). Interventions to improve explosive power after stroke remain under-investigated; however, one ongoing trial does include training with fast movements (NCT01573585 trial; Ongoing studies).

Mobility

All the meta-analyses of walking performance outcomes are summarised in Table 4 and this shows a clear pattern of findings.

Cardiorespiratory training increased preferred and maximal walking speed and walking capacity (6-MWT) at the end of the training period (Analysis 1.12; Analysis 1.13; Analysis 1.14). Benefits were retained after follow-up only in maximum walking speed (Analysis 2.8). Gait improvements in stroke survivors after cardiorespiratory training may occur due to an increased fitness reserve (arising from an increased VO_2 peak or improved gait economy, or both). Cardiorespiratory walking training is, however, also task-related and repetitive in nature. These elements by themselves may facilitate motor learning and benefit gait performance even in the absence of an obvious improvement in physical fitness parameters. There is evidence that suggests cardiorespiratory training, as well as improving walking speed, may reduce the reliance of stroke survivors on other people to assist with ambulation (Functional Ambulation Categories score; Analysis 1.11).

Mixed training increased preferred walking speed and walking capacity at the end of the training period (Analysis 5.22; Analysis 5.24). Benefits were retained only in the 6-MWT performance (Analysis 6.14). These findings were based, however, on trials that were heterogeneous and potentially confounded by additional training time. When we looked only at the results of the 'unconfounded' trials, we did not find any significant training effect (Analysis 5.23). Moreover, all trials except one (Yang 2006) included specific walking training. Therefore, benefits may be explained by the additional walking practice and treatment 'attention'.

Meta-analyses revealed no significant effects of resistance training on walking outcomes. It is worth noting that most of the resistance training interventions did not incorporate walking as a mode of exercise. Improvements in muscle strength may not necessarily produce functional benefits (Kim 2001), which translate into a better walking performance. The relationships between 'fitness' and 'function' is indeed very complex and may arise from factors such as non-linear associations (Buchner 1991) or the interaction of 'co-impairments' such as lack of balance and low muscle strength (Rantanen 2001).

Therefore, on the whole, there is consistent evidence that measures of walking performance improve after both cardiorespiratory training and mixed training but not after resistance training. Although the improvements are clear one could still question whether they are clinically important. For example Fulk 2011 concluded that a clinically important increase in preferred walking speed after stroke would be 10.5 m/min; this is greater than the upper 95% CI margin of the effect sizes for preferred walking speed in this review.

Physical function

A variety of measures to assess functional limitations were used in the included trials. A number of balance outcomes were reported and data could be pooled.

Berg Balance scores improved after both cardiorespiratory (Analysis 1.20) and mixed training (Analysis 5.26) by a similar magnitude (Analysis 7.5). When balance data using other measurement tools are also combined (SMD; Analysis 5.30) a beneficial effect is shown for mixed training. All of the mixed training interventions involve weight bearing and walking and some specifically include balance training; these components of the training could improve balance. However, this overall effect is difficult to attribute to the content of the mixed training because many of the studies were confounded by increased training time. A sensitivity analysis showed the benefit disappeared when confounded studies were excluded.

The timed up and go measure improved after mixed training (Analysis 5.32) but, like the balance scores, when confounded trials were excluded the effect was no longer significant.

Health status and quality of life

Only a limited number of trials, with inconsistent results, included relevant quality of life measures. Therefore, few conclusions can be drawn on whether training can improve self perceived health status and quality of life after stroke.

One small trial (Aidar 2007) showed that both the physical functioning and the emotional role functioning of the SF-36 survey were significantly better after cardiorespiratory training.

Two trials, confounded by additional training time, showed better results on the physical functioning but not the social role functioning of the SF-36 survey after mixed training. Similarly, three trials demonstrated both immediate and long-term benefits of mixed training on the 'physical role functioning' of the SF-36 survey. The scoring of this domain is, however, problematic in people - such as stroke survivors - who are not engaged in employment (Johnson 1999). Furthermore, various elements of the SF-36 survey are prone to ceiling effects (Hobart 2002).

A small individual trial did not show any significant effect on the physical functioning and mental health components of the SF-36 health survey after resistance training.

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Mood

Only data from individual trials of variable methodological quality were available to assess the effects of training on mood. Results were not consistent amongst trials and no conclusions can be drawn.

Factors influencing primary and secondary outcome measures

Performing subgroup analyses is problematic when the number of trials is small; the consequences are reduced power and the influence of characteristics unrelated to the grouping factors.

Dose of training

All the training interventions occurred regularly and were progressive in nature. The interventions differed in the dose of training, quantified in terms of (1) overall volume of training time, and (2) the intensity of the exercise used.

The ACSM 1998 criteria were used to define an effective overall 'dose' of fitness training as defined by the parameters of intensity, duration, and frequency. Some study interventions may have provided a sufficient dose of training but failure to record or report intensity meant they could not be assigned to a category. Conversely, interventions meeting the criteria may have provided a low dose of training because they were of short duration (for example Kwakkel 2004).

Underestimation of benefits may arise if interventions are poorly attended or complied with. Full attendance was found in few included trials, where interventions occurred partly or completely during inpatient care, were home-based, or were of very short duration (four weeks).

Overestimation of benefits may arise in trials where the intervention group is potentially confounded by increased training time compared with the control group. In these trials with no attention control additional benefits could arise from non-specific effects of therapist input, psychosocial effects of contact with other participants and factors such as travel to and from a training location that could amount to a substantial dose of physical activity from which a real training effect could arise.

A further exaggeration of this simple 'dose' effect in confounded trials would also be expected for trials with a long duration or large volumes of training, or both. In most confounded trials the total volume of training was 20 hours or more, whilst only few unconfounded trials exceeded 20 hours of training. Published meta-analyses have shown that augmented stroke rehabilitation may result in improvements in activities of daily living (Kwakkel 2004). This source of confounding may influence the outcome in trials of physical fitness training. For example, in a number of instances when we excluded confounded trials in sensitivity analyses, the effect sizes became smaller. The data of Richards 1993 supported these observations, showing that longer gait training was associated with improved mobility outcomes (this may also be indicative of a dose-response effect).

Exercise programme intensity is one of the most important fitness training variables. The Pohl 2002 trial demonstrated that higher intensity walking increased maximal walking speed compared with lower intensity walking. However, the training programme in the Pohl 2002 trial was also the most rapidly progressing. So it is somewhat difficult to disentangle the effect derived from an increase in progression from the effect due to the intensity of the intervention.

The findings of this review indicate that stroke survivors may successfully complete a variety of short-term training interventions. However, the optimal dose of training for people with stroke has yet to be established.

Type of training

None of the included trials directly compared cardiorespiratory, resistance, and mixed training. We were able to compare the effects of the different types of training on gait speed. Walking speed increased significantly after cardiorespiratory training and mixed training, but not after resistance training. Both cardiorespiratory interventions and mixed interventions comprised specific gait-related training, which resulted in positive training effects.

Overall, the findings of this review show that benefits reflect the concept of the specificity of the training response. In particular, cardiorespiratory fitness (VO_2 peak) improved after cardiorespiratory training; muscle strength improved after resistance training; walking performance improved after training interventions based on walking or walking-like modes of exercise; walking and physical function outcomes did not improve after resistance training interventions, probably because functionally relevant movements are difficult to incorporate into resistance training interventions.

Timing of training

All our meta-analyses were divided into 'during usual care' and 'after usual care' subgroups. However, this still does not have much value for a subgroup analysis since there are generally too few trials and too many other influential confounding factors. For instance, trial design tends to differ among these groups, interventions tend to be longer after usual care, etc.

Retention of benefits

Functional advantages observed at the end of rehabilitation interventions are known to be transient, disappearing at a later stage (Kwakkel 1999; Kwakkel 2002). This is probably due to continued improvements in the control group rather than deterioration in function (Langhorne 2002). Fitness improvements observed at the end of training interventions are also known to deteriorate.

Few trials included in this review assessed possible retention of benefits over time. Those that did were at increased risk of attrition

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bias. Most of the functional improvements observed at the end of the training period were not sustained at later assessments. We found, however, that cardiorespiratory and mixed training effects on some measures of walking performance were retained at the end of the follow-up period. This retention effect could have arisen from an increase in habitual levels of physical activity (including walking) facilitated by participation in a training intervention. The extent to which short-term fitness training influences longer-term habitual physical activity after stroke is still unknown. Currently, there are no data examining either long-term fitness training interventions or interventions to facilitate continued exercise after the training intervention is completed. Long-term assessments should be incorporated into future trials of physical fitness training.

Effect of physical activity performed by control groups

Training effects arising from physical activity in the control group could partly explain the lack of effect observed in some of the included trials.

Effect of risk of bias

There are insufficient data to reliably examine the effects of risk of bias on estimates of effect. Overall, the methodological quality of most of the 45 included trials was modest. Only two trials enrolled more than 100 participants. Only 20 trials reported adequate methods of sequence generation and 19 trials had blinded outcome assessors (but some degree of unmasking occurred in three of these trials). The rate of attendance could only be determined in half of the included trials.

Summary of review findings

- Most available data relate to ambulatory people in the chronic phase (more than one month) post-stroke.
- It is feasible for stroke survivors to participate in a variety of short-term fitness training regimens presented in a range of settings, either during usual stroke care or after hospital discharge.
- There were insufficient data to assess death and dependence outcomes reliably.
- From the limited data reported in the included trials, there is an indication that participation in fitness training programs is safe and does not result in serious adverse events.
- There is some evidence that global indices of disability are reduced after training and that this is mediated largely by mobility improvements.
- There is some evidence that cardiorespiratory training may improve cardiorespiratory fitness.
- There is clear evidence that cardiorespiratory training improves measures of walking performance (e.g. walking speed and walking capacity) and reduces dependence on others for ambulation during usual care. Some training effects were retained at follow-up.
- There is some evidence that mixed training may improve measures of walking performance. Some training effects were retained at follow-up.
- There are insufficient data to assess reliably the effects of resistance training.
- There is an indication that the training effect may be greater when fitness training is specific or 'task-related'.
- There is some evidence that balance improves after mixed and cardiorespiratory training.
- There are few data relating to quality of life and mood outcomes.
- There are insufficient data to conduct meaningful subgroup analyses to explore the effects of the type, 'dose', and timing of training on outcome measures.
- Limited methodological quality of included trials and relatively small sample sizes hamper the generalisability of findings.

Issues for research

Control groups

In terms of trial design, there should be a concerted effort to balance total contact time across all arms in order to avoid confounded results. Preferably, the control intervention should be a non-exercise intervention to avoid training effects. In reality this may be difficult to achieve since even performing activities of daily living may be sufficient to cause training effects in elderly people (Young 2001). However, a comparison of two different doses of training would be a robust way of clarifying whether the content of the training itself is beneficial.

Interventions

Currently there are few well-controlled trials examining interventions to improve muscle force production. Trials of resistance training often focus on pre-specified movements that bear little resemblance to those relevant to everyday life and, even though muscle strength may improve, no functional benefits arise. The nature of the association between physical fitness and functional benefits is complex, and this suggests that training interventions should also address other co-impairments such as balance.

Outcome measures

To measure disability and dependence in stroke is problematic. A variety of disability and assessment scales are usually reported in trials of physical rehabilitation and fitness training. These scales do not always assess the same functional domain and therefore pose

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the problem of the validity and reliability of combining their results in a meta-analysis. Furthermore, some of these scales are not validated in stroke survivors and, therefore, may lack specificity. Rating scales are also prone to 'ceiling effect' and to skewed distributions. It would be useful if only well-known, validated scales are used in future trials for the assessment of participants' functional performance and if trial investigators would clearly address the problems related to the use of these assessment scales.

Stroke survivors who are eligible for fitness training have typically mild levels of disability. Mild impairments may be difficult to assess and many of the existing disability scales may fail to detect them. However, functional decline over time that is simply due to increasing age and inactivity could mean that mild disability may progress quickly to more serious levels. Therefore, it would be useful to assess long-term outcomes in mild stroke survivors using pre-clinical disability measures (for example Fried 1996).

Long-term studies

Both improvements in physical fitness after training and improvements in physical function after rehabilitation are transient. Since physical fitness may be linked to functional status, the long-term retention of benefit should be routinely examined in trials of fitness training. Fitness and function parameters are known to deteriorate with physical inactivity and to decrease with increasing age. Therefore, it is plausible that short-term effects of training only emerge as being beneficial after a period of functional decline.

There is a need to examine strategies aimed at promoting physical activity and maintaining physical fitness in the long term after stroke.

In conclusion, there is a clear need for larger well-designed trials of physical fitness training. Future trials should include participants with a greater spectrum of stroke severity that includes non-ambulatory patients, have adequate control interventions, and use relevant outcome measures.

AUTHORS' CONCLUSIONS

Implications for practice

Cardiorespiratory training and mixed training during or after usual stroke care is effective in increasing walking speed and walking capacity in stroke survivors. It is likely that improvements in fitness, mobility, and physical function outcomes are associated with 'task-related' training. Guidance and services for exercise after stroke are developing worldwide, including:

- UK (Exercise and Fitness Training after Stroke Instructor course; www.laterlifetraining.co.uk/courses/exercise-for-stroke-instructor/);
- Australia (http://heartmoves.heartfoundation.org.au);
- Canada (Aerobic Exercise Recommendations to Optimize Best Practices In Care after Stroke (AEROBICS) best practice recommendations).

These initiatives are based on existing evidence about the benefits of exercise after stroke and the needs of stroke survivors to have ongoing access to rehabilitation after discharge from hospital. The findings of this review will inform the content of such services.

Implications for research

Larger, well-designed clinical trials are needed to assess the effects of physical fitness training after stroke and to determine the optimal regimen for improving fitness.

Future trials should:

- comply with the current CONSORT guidelines for reporting of randomised clinical trials (CONSORT 2010);
- include a broader population of stroke survivors (including non-ambulatory stroke survivors) to allow stratification by gender, level of impairment, and functional ability;
- assess the effects of physical fitness training in people with specific post-stroke problems, such as people with depression or post-stroke fatigue;
- be of longer duration (12 weeks or longer);
- comprise a long-term follow-up.

The training intervention and the control intervention should be comparable in terms of duration to prevent overestimation of training effects. The content of an attention control intervention should be chosen carefully to prevent underestimation of treatment effects caused by confounded physical activity in the control group.

Implications for future updates

The literature on physical fitness training interventions is constantly growing. Complex reviews such as this do attract suggestions to 'split' findings in some way. However, for ease of updating and to allow direct comparison of a range of different fitness interventions the current architecture should remain. It may be desirable to revise some of the inclusion criteria to allow more potentially relevant comparisons to be assessed especially where these are not covered by existing Cochrane Reviews.

ACKNOWLEDGEMENTS

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We thank the Cochrane Stroke Group editorial team for their assistance in preparing the protocol. We are grateful to Brenda Thomas for her assistance in developing the search strategies. We would also thank all investigators who provided further information about existing trials.

We would be grateful if people who are aware of trials potentially relevant for this review could contact David Saunders.

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* *Indicates the major publication for the study*

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CHARACTERISTICS OF STUDIES

Characteristics of included studies *[ordered by study ID]*

Ada 2013

Methods	Design: randomised trial of cardiorespiratory training versus no intervention - after usual care Randomised: computer-generated randomisation stratified on walking disability by independent researcher Allocation concealment: not applicable Blinding: assessors blind to group allocation ITT: yes Measurements: end of interventions (2 and 4 months) and 6 and 12 months follow-up Withdrawals: 2 months treadmill training group: 1 participant withdrew; control group: 3 participants withdrew - reasons unclear
Participants	Randomised: 102 participants Intervention: treadmill training 2 months group: 34 participants; 28 males and 6 females; mean age 64 years (SD 12); 20 months post-stroke (SD 15). Treadmill training 4 months group: 34 participants; 24 males and 10 females; mean age 70 years (SD 11); 22 months post-stroke (SD 16) Control: 34 participants; 19 males and 15 females; mean age 63 years (SD 13); 19 months post-stroke (SD 13) Inclusion criteria: within first 5 years post-stroke; MMSE score of > 23; discharged from rehabilitation; community dwelling; 10 metre unaided walking speed > 9 seconds Exclusion criteria: unstable cardiac status; severe cognitive and/or asphasia
Interventions	Invention group: both 2 months and 4 months treadmill training group received 30 minutes treadmill walking 3 times/week for 8 or 16 weeks respectively Progressive in nature. Both groups also received overground walking training (20% of intervention during week 1, increasing to 50% at week 8; for those in 4-month group, overground walking reduced to 20% of intervention increasing again to 50% at week 16) Control group: no intervention Setting: rehabilitation centre
Outcomes	Included outcomes: 6-MWT; EuroQol Health Status; Adelaide Activities Profile; walking and falls self efficacy
Notes	There were 2 intervention groups. The extracted data correspond to: Exp 1 (4-month intervention) end of intervention data were compared with control group data available at 4 months only Exp 2 (2-month intervention) end of intervention data were compared with control group data available at 2 months only

Risk of bias

Bias	Authors' judgement	Support for judgement

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Ada 2013 (*Continued*)

Random sequence generation (selection bias)	Low risk	Computer-generated randomisation stratified on walking disability by independent researcher
Allocation concealment (selection bias)	Low risk	Allocation concealment ensured because all available participants allocated in groups of 15 to blocks of 3 after baseline measures recorded
Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Assessor blinded
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT analysis performed Few (2/102) losses; 2-month treadmill training group: 1 participant withdrew; control group: 3 participants withdrew Reasons and timing unclear
Incomplete outcome data (attrition bias) End of follow-up	Low risk	ITT analysis performed Few losses (2/102); 2-month treadmill training group: 1 participant withdrew; control group: 3 participants withdrew Reasons and timing unclear
Selective reporting (reporting bias)	Low risk	Reported outcomes correspond to trial registry ACTRN12607000227493
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Intervention group has uncontrolled exposure

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Aidar 2007

Methods	Design: randomised trial of cardiorespiratory training (aquatic physical exercises) versus no intervention - after usual care Randomisation: stated 'random' but no further details provided Allocation concealment: not reported Blinding: not reported ITT: no Measurements: at the end of intervention (12 weeks) Withdrawals: 1 participant in the intervention group refused the training - at the beginning of the programme; 2 participants in the control group were not assessed at the end of the intervention
Participants	Randomised: 31 participants, assessed 28 (15 participants in the intervention group and 13 in the control group) Intervention: 15 participants: 10 males and 5 females; mean age 50.3 years (SD 9.1) Control: 13 participants; 9 males and 4 females; mean age 52.5 years (SD 7.7) Inclusion criteria: ischaemic cerebrovascular accident; hemiplegia or hemiparesis Exclusion criteria: cognitive impairment; significant co-morbidities
Interventions	Intervention group: aquatic physical sessions (e.g. walking activity and physical exercises in the water; swimming) 45 to 60 minutes each session; 2 times/week for 12 weeks Control group: no intervention - delayed started of the same programme Setting: community setting
Outcomes	Included outcome: SF-36
Notes	Content of the intervention not very detailed. Unclear whether the trial met the ACSM criteria for fitness training

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Stated 'random' but no further details provided
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) End of intervention	Unclear risk	1/16 lost from intervention and 2/15 from control group. No ITT analysis
Selective reporting (reporting bias)	Unclear risk	No protocol available

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Aidar 2007 (*Continued*)

Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

Aidar 2012

Methods	Design: randomised trial of strength training versus usual care Randomised mechanism: lottery allocation into groups Allocation concealment: not reported Blinding: assessor blinded to group allocation Measurements: end of intervention (12 weeks) Withdrawals: 3 participants from intervention group during second week of intervention and 2 participants from control group were not assessed at the end of the intervention
Participants	Randomised: 24 participants Intervention: 11 participants: 6 males and 5 females; mean age 51.7 years (SD 8.0) Control: 13 participants: 9 males and 4 females; mean age 52.5 years (SD 7.7) Inclusion criteria: ischaemic stroke at least 1 year prior to testing; hemiplegia or hemiparesis Exclusion criteria: aphasia
Interventions	Intervention group: strength training sessions (3 sets of 8 to 10 repetitions, leg press, front pulley and bench press) 45 to 60 minutes each session; 3 times/week for 12 weeks Control group: no intervention Setting: indoor basketball court
Outcomes	Included outcomes: State-Trait Anxiety Inventory; muscle strength
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	"Lottery" allocation into groups; still unclear exactly what was done
Allocation concealment (selection bias)	Unclear risk	Allocation concealment: not reported
Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Blinded outcome assessors

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Aidar 2012 (*Continued*)

Incomplete outcome data (attrition bias) End of intervention	High risk	5/29 dropouts (17%) with no ITT analysis
Selective reporting (reporting bias)	Unclear risk	No protocol available
Other bias	Unclear risk	Self selection bias may occur as advertisements were used
Imbalanced exposure	High risk	Intervention group has uncontrolled exposure

Bale 2008

Methods	Design: randomised trial of resistance training plus % usual care versus usual care - during usual care Sample size calculation reported Randomisation: drawing lots - not clearly described Allocation concealment: unclear Blinding: outcome assessors blinded ITT: planned but no withdrawals Measurements: at the end of intervention (4 weeks) Withdrawals: none
Participants	Randomised: 18 participants Intervention: 8 participants; 3 males and 5 females; mean age 68.0 years (SD 13); time since stroke 49.4 (SD 22.1) days Control: 10 participants; 4 males and 6 females; mean age 64.9 years (SD 8.8); time since stroke 32.0 (SD 18.5) days Inclusion criteria: first onset of stroke with reduced muscle strength in the affected leg; ability to understand verbal information; ability to sit without support Exclusion criteria: significant sensory or cognitive sequels; arrhythmia; uncontrolled angina pectoris or hypertension; co-morbidities that could mask the sequels from the stroke; lack of motor control of the affected leg
Interventions	Intervention group: resistance training 50 minutes a day 3 days per week for 4 weeks. 8 individually tailored exercises for the affected lower limb involving weight bearing, stepping, sit-to-stand, heel/toe raising, and bridging. Tailored progression included using weights, reducing speed, adding more sets, etc. Other functional activities sometimes included too (walking, stair climbing, sit-to-stand). One set of 10 to 15 repetitions to moderate fatigue Control group: usual care (Bobath) 50 minutes a day 3 days per week for 4 weeks, plus usual care (other) 50 minutes/day, 2 days per week for 4 weeks. Total training: 50 minutes a day 5 days per week for 4 weeks Setting: 2 rehabilitation units
Outcomes	Included outcomes: isometric muscle strength; preferred walking speed; maximal walking speed Other outcomes: maximum weight bearing; 2 items of the MAS; Patient Global Impres-

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	sion of Change tool	
Notes	Very small sample size Poor external validity	
Risk of bias		
Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Drawing lots - not clearly described
Allocation concealment (selection bias)	Unclear risk	Poorly reported
Blinding (performance bias and detection bias) All outcomes	High risk	Attention control exposure
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Outcome assessor
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT planned but no withdrawals
Selective reporting (reporting bias)	Unclear risk	No protocol available
Other bias	Unclear risk	Unclear
Imbalanced exposure	Low risk	Balanced exposure

Bateman 2001

Methods	Design: multi-centre randomised trial of cardiorespiratory training plus usual care versus non-exercise intervention plus usual care - during usual care Randomisation: mechanism - computer; method - blocks size of 10 participants Allocation concealment: numbered, sealed envelopes Blinding: investigator blinded; participants encouraged to maintain blinding; efficacy unknown ITT: yes, but participants were excluded after recruitment and baseline assessments due to discharge Measurements: end of intervention (12 weeks) and at follow-up Withdrawals: intervention group (12 participants: 4 before and 8 after the 12-week assessment); control group (12 participants: 2 before and 10 after the 12-week assessment) Reasons unclear but included early discharge
Participants	Randomised: 84 participants Intervention: 40 participants; males 20, females 20; age 47.0 years (SD 13.1); 144 days

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	(SD 84) post-stroke Control: 44 participants; males 29, females 14; age 50.3 years (SD 10.1); 184 days (SD 127) day post-stroke Inclusion criteria: single stroke; could comply with planned interventions; could sit on a cycle ergometer Exclusion criteria: likely to be inpatient for < 3 months; impairments severe enough to limit training compliance and participation; cardiac disease; co-morbidities contraindicated for exercise
Interventions	Intervention: cardiorespiratory training; cycle ergometry at 60% to 80% of age-related heart rate maximum for up to 30 minutes per day 3 days per week for 12 weeks Control: relaxation - programme individualised: included breathing exercises, progressive muscle relaxation, autogenic exercises, visualisation techniques Setting: multicentre, 4 rehabilitation units
Outcomes	Included outcomes: FIM; BI (0 to 20 scale); NEADL; RMI; HADS; BBS; gait maximum speed; maximum cycling workload (data transformed to Log base e); BMI Other outcomes: fatigue questionnaire
Notes	Mixed brain injury data provided by authors; stroke-only data retained and re-analysed. High rate of missing data made statistical analyses difficult

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Computer based block (n = 10) randomisation
Allocation concealment (selection bias)	Low risk	Numbered, sealed envelopes
Blinding (performance bias and detection bias) All outcomes	High risk	Attention control
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Investigator blinded; participants encouraged to maintain blinding; efficacy unknown
Incomplete outcome data (attrition bias) End of intervention	High risk	ITT employed 6/84 (7%) lost: intervention group 4; control group 2 Reasons for losses not clear but included exclusion after recruitment and baseline assessments due to discharge Large amounts of missing outcome data

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Bateman 2001 (*Continued*)

Incomplete outcome data (attrition bias) End of follow-up	High risk	ITT employed 24/85 (29%) total losses; intervention group 8; control group 10
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	Low risk	Balanced exposure

Cooke 2010

Methods	Design: phase I multicentre trial; 4 centres; mixed training plus usual care versus usual care - during usual care - i.e. functional strength training (FST) plus conventional physiotherapy (CPT) versus conventional physiotherapy alone and versus conventional physiotherapy plus conventional physiotherapy (CPT + CPT) Randomisation: computer-generated random allocation in blocks of 9 per trial centre (stratified allocation by baseline scores for visual spatial neglect) Allocation concealment: sequentially numbered, sealed, opaque envelopes Blinding: assessor blinded to group allocation ITT: attempt to measure participants at outcome and follow-up even if they withdraw but analyses were not performed according to ITT principle Measurements: at the end of intervention (6 weeks) and 12 weeks later (follow-up) Withdrawals: at outcome 7/74 (9%) participants were lost at outcome in the control CPT group (3 unwell, 3 withdrew, 1 moved abroad). At follow-up, a further 21 participants had withdrawn (total 28/74 26%). 14 participants were lost in the CPT group (5 unwell, 4 withdrew, 1 moved abroad, 2 housebound, 2 died) and 7 in the CPT + FST group (5 unwell, 2 withdrew)
Participants	Randomised: total 109 participants. 38 participants were randomised to CPT, 35 to CPT + CPT, and 36 to FST + CPT (only the results from the CPT and the CPT + FST groups were included in this review) Number randomised in comparisons used in this review this review = 74 Intervention: FST + CPT = 36 participants: 22 males (61%) and 14 females (39%); mean age: 71.17 (SD 10.6); 33.86 (SD 16.50) days after stroke Control: CPT = 38 participants: 21 males (55%) and 17 females (45%); mean age: 66. 37 (SD 13.7); 36.76 (SD 22.41) days after stroke Inclusion criteria: inpatients between 1 and 13 weeks after anterior circulation stroke (ischaemic and haemorrhagic); independently mobile; some voluntary contraction in the lower affected limb; no orthopaedic surgery or trauma affecting the lower limb in the last 8 weeks; no previous history of neurological diseases; able to follow a 1-stage command Exclusion criteria: not reported
Interventions	Intervention: FST/mixed training plus CPT. FST consisted of increasing the amount of body weight the patients needed to move; increasing movements resistance; reducing amount of body weight support during treadmill training. Frequency of intervention: 1 hour for 4 days/week for 6 weeks

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	Control: CPT included soft issue mobilisation, facilitation of muscle activity, facilitation of co-ordinated multi-joint movement; tactile and proprioceptive input, resistive exercise, and functional retraining. Frequency of intervention: 1 hour for 4 days/week for 6 weeks Setting: hospital
Outcomes	Included outcomes: walking speed; health-related quality of life measures (e.g. EuroQol) Other outcomes: gait parameters; paretic knee torque force analysis; modified RMI
Notes	Trial authors stated 'strength training' but intervention was actually mixed training

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Computer-generated random allocation in blocks of 9 per trial centre (stratified allocation by baseline scores for visual spatial neglect)
Allocation concealment (selection bias)	Low risk	Sequentially numbered sealed opaque envelopes
Blinding (performance bias and detection bias) All outcomes	High risk	Comparison used means no attention control
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Assessor blinded to group allocation
Incomplete outcome data (attrition bias) End of intervention	High risk	Attempt to measure participants at outcome and follow-up even if they withdraw but analyses were not performed according to ITT principle. Imbalanced losses at the end of intervention 7/74 (9%) participants were lost from the control CPT group (3 unwell, 3 withdrew, 1 moved abroad)
Incomplete outcome data (attrition bias) End of follow-up	High risk	Attempt to measure participants at outcome and follow-up even if they withdraw but analyses were not performed according to ITT principle. Imbalanced large losses at the end of follow-up 28/74 (38%) total losses: 14 participants were lost from the CPT group (5 unwell, 4 withdrew, 1 moved abroad, 2 housebound, 2 died) and 7 in the intervention group CPT + FST group (5 unwell, 2 withdrew)

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Cooke 2010 (*Continued*)

Selective reporting (reporting bias)	Low risk	Reported outcome correspond with those in trial register NCT00322192
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure (CPT + CPT group although balanced does not meet inclusion criteria)

Cuviello-Palmer 1988

Methods	Design: randomised trial of cardiorespiratory training plus % usual care versus usual care - after usual care Randomisation: unknown Allocation concealment: unknown Blinding: unknown ITT: no Measurements: end of intervention (3 weeks) Withdrawals: none
Participants	Randomised: 20 participants Intervention: 10 participants; 6 males and 4 females; age 69.5 years (SD 14.1); 20.7 days post-stroke (SD 13.2) Control: 10 participants; 7 males and 3 females; age 71.8 years (SD 12.0); 12.0 days post-stroke (SD 16.8) Inclusion criteria: unknown Exclusion criteria: unknown
Interventions	Intervention: cardiorespiratory training: isokinetic ergometer allowing resisted reciprocal leg movements (Kinetron II); commencing at 2 x 7 minutes/day for 5 days/week and 1 x 7 minutes/day for 1 day/week (total 6 days/week) for 3 weeks progressing to 10 minutes per session in week 2 and 12 minutes in week 3 Exercise intensity maintained at a heart rate of < 20 beats/minute above resting Control: usual care: 2 x 45 minutes/day for 5 days/week and 1 x 45 minutes/day for 1 day/week (total 6 days/week) for 3 weeks Gait training, mat exercises, and transfer training achieved via strengthening exercises, post neuromuscular facilitation (PNF), functional electrical stimulation (FES), Brunnstrom, Rood, and neurodevelopment techniques Setting: rehabilitation centre
Outcomes	Included outcomes: FIM (old version); preferred gait speed (7 seconds) Other outcomes: stance symmetry; contact time (seconds); stride cadence steps/minute and other biomechanical gait parameters
Notes	

Risk of bias

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Cuviello-Palmer 1988 (*Continued*)

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Not reported
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	High risk	Some degree of attention control
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) End of intervention	Low risk	No withdrawals, no planned ITT
Selective reporting (reporting bias)	Unclear risk	No protocol available
Other bias	Unclear risk	Unclear
Imbalanced exposure	Low risk	Exposure balanced

da Cunha 2002

Methods	Design: randomised trial of cardiorespiratory training plus % usual care versus usual care - during usual care Randomisation mechanism: random number table Allocation concealment: unknown Blinding: unknown ITT: no Measurements: end of intervention (2/3 weeks - until discharge) Withdrawals: none
Participants	Randomised: 15 participants Intervention: 7 participants; 6 males and 1 females; age 57.8 years (SD 5.5); 15.7 days post-stroke (SD 7.7) Control: 8 participants; 7 males and 1 female; age 58.9 years (SD 12.9); 19.0 days post-stroke (SD 12.7) Inclusion criteria: recent stroke (onset < 6 weeks); significant gait deficit (< 36 metres/minute; FAC score of 0, 1 or 2); sufficient cognition to participate in training (Mini Mental State Examination - MMSE $\geq$ 21); able to stand and take 1 or more steps without assistance Exclusion criteria: co-morbidity or disability other than hemiparesis; recent myocardial infarct; any uncontrolled health condition; joint disease or rheumatoid arthritis; obesity (> 110 kg); cognitive impairment (MMSE < 21)

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Interventions	Intervention: cardiorespiratory training: treadmill walking with body weight support 20 minutes/day 6 days/week for 2 to 3 weeks (until discharge); intensity unknown but rapid progression imposed by increasing speed and reducing body weight support; the 20-minute training replaced the 20-minute gait training component of the control Control: usual care 3 hours per day for 6 days per week for 2 to 3 weeks until discharge; included kinesitherapy (1 hour per day), occupational therapy (1 hour per day) and physical therapy (1 hour per day): the physical therapist included 20 minutes of gait training comprising stepping, standing, turning, etc, but not continuous walking Setting: rehabilitation centre
Outcomes	Included outcomes: cycle performance work rate (Watts); VO_2 peak; blood pressure; FAC; FIM (lower limb); gait speed maximal (5 metres); gait endurance (5 minutes); gait economy Other outcomes: stance symmetry; contact time (seconds); stride cadence steps/minute and other biomechanical gait parameters
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Randomisation by using random numbers to pre-assign participants based on recruitment order
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	High risk	Some degree of attention control
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) End of intervention	Low risk	No withdrawals, no planned ITT
Selective reporting (reporting bias)	Unclear risk	No protocol available
Other bias	Unclear risk	Unclear
Imbalanced exposure	Low risk	Balanced exposure

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Donaldson 2009

Methods	Design: phase II randomised multicentre trial; 3 centres; mixed training plus usual care versus usual care - during usual care - i.e. functional strength training (FST) plus conventional physiotherapy (CPT) versus CPT alone and versus CPT plus CPT Randomisation: computer-generated random allocation. Allocation was stratified by baseline Action Research Arm Test score in blocks of 3 within each stratum Allocation concealment: sequentially numbered sealed opaque envelopes held by an independent investigator Blinding: assessor blinded to group allocation ITT: yes Measurements: at the end of intervention (6 weeks) and 12 weeks after (follow-up) Withdrawals: 2 participants were lost at outcome in the CPT group (new stroke = 1; bail = 1). A further 11 participants were lost at follow-up. 5 participants in the CPT group (3 unwell, 1 moved abroad, 1 bail) and 2 in the CPT + FST group (1 unwell, 1 moved abroad)
Participants	Randomised: total 30 participants. 10 participants were randomised to CPT, 10 to CPT + CPT, and 10 to CPT + FST (only the results from the CPT and the CPT + FST groups were included in this review, total 20) Intervention: CPT + FST = 10 participants, 3 males and 7 females; mean age: 72.6 Control: CPT = 10 participants, 5 males and 5 females; mean age: 72.6 Inclusion criteria: inpatients; infarction of the anterior cerebral circulation between 1 weeks and 3 months after stroke; some voluntary contraction in the upper affected limb; no obvious unilateral visuospatial neglect; ability, prior to the stroke, to use the paretic upper limb to lift a cup and drink; ability to follow a 1-stage command Exclusion criteria: not reported
Interventions	Intervention: CPT + FST. FST = repetition and goal directed functional activity of the upper limb; hand positioning; hand grip activities; hand manipulation involving objects; improving power of shoulder/elbow muscles to enable appropriate hand position. Frequency of intervention: 1 hour for 4 days/week for 6 weeks Control: CPT included soft issue mobilisation, facilitation of muscle activity/movement, positioning; joint alignment; tactile and proprioceptive input. Frequency of intervention: 1 hour for 4 days/week for 6 weeks Setting: hospital setting
Outcomes	Included outcomes: upper limb strength (hand grip force, pinch grip force; isometric elbow flexion and extension force); upper limb function (ARAT) Other outcomes: dexterity (i.e. 9-HPT)
Notes	Not clear how this relates to NCT00322192

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Computer-generated random allocation Allocation was stratified by baseline ARAT score in blocks of 3 within each stratum

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Allocation concealment (selection bias)	Low risk	Sequentially numbered, sealed, opaque envelopes held by an independent investigator
Blinding (performance bias and detection bias) All outcomes	Unclear risk	No attention control in the comparison, however: Quote: "The majority of subjects (68%) who completed outcome measures were unsure as to which group they had been allocated (CPT 75%, CPT + CPT 60%, CPT + FST 70%; Table 3). Only 4 of the 28 subjects (14%) correctly identified the treatment they received. Even in the CPT group who had been told that they would receive no extra therapy, only 1 person correctly identified their grouping."
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Assessor blinded to group allocation; efficacy unknown
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT analysis planned 2/20 (10%) lost at the end of intervention: control CPT group (new stroke = 1; bail = 1)
Incomplete outcome data (attrition bias) End of follow-up	High risk	ITT analysis planned 9/20 (45%) total losses at the end of follow-up: additional 5 participants in the control CPT group (3 unwell, 1 moved abroad, 1 bail) and 2 in the intervention CPT + FST group (1 unwell, 1 moved abroad)
Selective reporting (reporting bias)	Unclear risk	Unclear how the trial relates to NCT00322192; outcomes do not correspond
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure in comparison used CPT versus CPT + FST

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Duncan 1998

Methods	Design: randomised trial of mixed training versus usual care - after usual care (outpatient) Randomisation mechanism: unknown; method: blocks of 10 Allocation concealment: third party involvement Blinding: unclear ITT: yes Measurements: end of intervention (12 weeks) Withdrawals: none
Participants	Randomised: 20 participants Intervention: 10 participants; number of males and females unknown; age 67.3 years (SD 9.6); 66 days post-stroke Control: 10 participants; number of males and females unknown; age 67.8 years (SD 7. 2); 56 days post-stroke Inclusion criteria: 30 to 90 days post-stroke; minimal/moderately impaired sensorimotor function; available to attend all training sessions; ambulatory with or without supervision or walking aids; living at home within 50 miles Exclusion criteria: medical condition which compromised outcome assessment or prevented fitness training; MMSE score < 18 or receptive aphasia
Interventions	Intervention: mixed training, performed approximately 90 minutes/day 3 days/week for 12 weeks (8 weeks supervised 1:1 with therapist and 4 weeks alone), functional exercises comprising assistive/resistive exercise, balance exercises, upper limb functional activities, walking or cycling; apart from some resisted exercise the training intensity was not quantified Control: usual outpatient care, physical and occupational therapy as advised by the patient's physician, averaging 44 minutes per day, 3.25 days per week for 12 weeks, therapeutic interventions were during home or outpatient visits and comprised balance training (60%), strength training (40%), bimanual activities (50%) and facilitative exercise (30%); cardiorespiratory training was not provided (0%) Setting: home-based, therapist-supervised for first 8 weeks
Outcomes	Included outcomes: BI; Lawton Activities of Daily Living; gait endurance (6-MWT); BBS; gait preferred speed (data lack variance measures) Other outcomes: SF-36 (non-standard pooling of data), Jebsen Hand Test; Fugl Meyer (upper and lower extremity)
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Block randomisation used (blocks of 10), method unknown
Allocation concealment (selection bias)	Unclear risk	Third party involvement
Blinding (performance bias and detection bias)	High risk	Degree of attention control

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Duncan 1998 (*Continued*)

All outcomes		
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) End of intervention	Low risk	Planned ITT; no losses
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

Duncan 2003

Methods	Design: randomised trial of mixed training versus usual care - after usual care (outpatient) Randomisation mechanism: unknown; method: blocks of 6 Allocation concealment: sealed envelopes Blinding: investigator; participants asked to maintain blinding ITT: yes Measurements: end of intervention (12/14 weeks) and 6-month follow-up Withdrawals: intervention (10 participants: 6 before (1 renal insufficiency, 1 subclavian steal syndrome, 1 chose withdrawal, 3 recurrent stroke), 4 after the 3-months follow-up (1 died, 1 hospital, 2 recurrent stroke); control (11 participants: 2 before (1 withdrew, 1 non-return), 9 after 3-months follow-up (2 died, 2 hospital, 5 withdrew)
Participants	Randomised: 100 participants Intervention: 50 participants; 23 males and 27 females; age 68.5 years (SD 9.0); 77.5 days post-stroke (SD 28.7) Control: 50 participants; males and 27 females 23; age 70.2 years (SD 11.4); 73.5 days post-stroke (SD 27.1) Inclusion criteria: 30 to 150 days post-stroke; independent ambulation for 25 feet; Fugl-Meyer scores 27 to 90; Orpington Prognostic Scale 2.0 to 5.2); Folstein Mini-Mental State score 16 Exclusion criteria: serious cardiac condition; oxygen dependence; severe weight bearing pain; serious organ system disease; life expectancy < 1 year
Interventions	Intervention: mixed training, performed approximately 90 minutes per day 3 days per week for 12 to 14 weeks (36 sessions); training included range of motion and flexibility, strength training, balance, functional upper extremity practice, endurance training via interval training on cycle ergometer. All elements progressive but intensity not quantified Control: usual outpatient care including physiotherapy and occupational therapy for participants who needed. All controls received 30-minute visit every 2 weeks including provision of health promotion information Setting: home-based, therapist-supervised for first 8 weeks

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Duncan 2003 (*Continued*)

Outcomes	Included outcomes: cognitive and motor subscales of the FIM; SF-36 subscales; ankle dorsiflexion and knee extension isometric strength (Nm); isometric grip strength (N); BBS; functional reach; VO_2 peak; gait speed preferred (10 metre); 6-MWT; community ambulation (> 0.8 metres/second) Other outcomes: Stroke Impact Scale; cycle duration; Fugl Meyer scores
Notes	Some outcomes reported as change from baseline scores, others reported as means at the end of 6-month follow-up

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Block randomisation used (blocks of 6), method unknown
Allocation concealment (selection bias)	Unclear risk	Sealed envelopes
Blinding (performance bias and detection bias) All outcomes	High risk	Degree of attention control
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Investigator blinded; participants asked to maintain blinding
Incomplete outcome data (attrition bias) End of intervention	Unclear risk	ITT used 8/100 (8%) losses before outcome assessment intervention 6 (1 renal insufficiency, 1 subclavian steal syndrome, 1 chose withdrawal, 3 recurrent stroke) Control 2 (1 withdrew, 1 non-return)
Incomplete outcome data (attrition bias) End of follow-up	High risk	ITT used 21/100 (21%) total losses at the end of follow-up intervention 4 (1 died, 1 hospital, 2 recurrent stroke) Control 9 (2 died, 2 hospital, 5 withdrew)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

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Eich 2004

Methods	Design: randomised trial of cardiorespiratory training plus usual care versus usual care - during usual care Randomisation mechanism: picking envelopes; method: restricted Allocation concealment: sealed envelopes Blinding: investigator; efficacy was compromised ITT: yes Measurements: end of intervention (6 weeks) and 3-month follow-up Withdrawals: intervention 1 participant (refusal) after the 6-week training
Participants	Randomised: 50 participants Intervention: 25 participants; 17 males and 8 females; age 62.4 years (SD 4.8); 43 days post-stroke (SD 15) Control: 25 participants; 16 males and 9 females; age 64 years (SD 9); 44 days post-stroke (SD 18) Inclusion criteria: aged 50 to 75 years; first stroke; time since stroke < 6 weeks; walk 12 metres with/without assistance; Barthel score 50 to 80; participating in 12-week comprehensive rehabilitation programme; stable cardiovascular responses; no non-stroke walking impairments; able to understand purpose and content of study
Interventions	Intervention: cardiorespiratory training, performed 30 minutes per day 5 days per week for 6 weeks; progressive treadmill training with either no or minimal support of body weight; intensity was 60% of heart rate reserve Control: both groups received usual care comprising individual physiotherapy based on Bobath concept plus occupational and speech therapy, and neuropsychology as required Setting: rehabilitation unit - inpatient care
Outcomes	Included outcomes: gait speed maximal (10 metres); gait endurance (6-MWT) Other outcomes: RMA (non-normal data); walking quality scale (non-normal data)
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Restricted randomisation; independent person picking one of (initially) 50 sealed envelopes
Allocation concealment (selection bias)	Unclear risk	Sealed envelopes; opaque and numbered unknown
Blinding (performance bias and detection bias) All outcomes	High risk	No suitable attention control
Blinding of outcome assessment (detection bias) All outcomes	High risk	Quote: "one could not fully exclude the possibility that the outcome observers were not totally blind"

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Eich 2004 (*Continued*)

Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT planned Only 1/50 (2%) lost: intervention 1 participant (refusal) after the 6-week training
Incomplete outcome data (attrition bias) End of follow-up	Unclear risk	ITT planned Only 1/50 (2%) lost overall
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

Flansbjer 2008

Methods	Design: randomised trial of resistance training versus no training - after usual care Randomisation: stratified unequal randomisation (2:1) Allocation concealment: non-sealed envelopes Blinding: physiotherapists who assessed isokinetic strength and gait performance outcomes were blinded to group assignment but the physiotherapist who assessed dynamic strength and muscle tone outcomes was not blinded; patients were not blinded but were told not to disclose group assignment ITT: yes Measurements: at the end of intervention (10 weeks), 5-month follow-up and a 4-year follow-up Withdrawals: 1 participant dropped out from the intervention group due to an accident unrelated to strength training. 2 participants were unable to perform follow-up assessments due to new illness, 4 participants did not wish to continue at follow-up stage (but were reported in general good health)
Participants	Randomised: total 25 participants Intervention: 15 participants (16 randomised), 9 males and 6 females; mean age 61 (SD 5) years; time since stroke 18.9 (SD 7.9) months Control: 9 participants, 5 males and 4 females; mean age 60 (SD 5) years; time since stroke 20.0 (SD 11.6) months Inclusion criteria: age 40 to 70 years; 6 months post-stroke; able to perform isolated extension and flexion movements of the knee; at least 15% reduction in muscle strength in the paretic limb (mean isokinetic peak torque at 60º/sec); walk unsupervised for 200 metres with or without walking aid; no medication, physical, cognitive, or mental dysfunction that could impact upon knee muscle strength, gait performance, or perceived participation; able to understand verbal and written information Exclusion criteria: not reported
Interventions	Intervention group: 10 weeks of dynamic and isokinetic knee muscle strength training. Each training session started with a warm-up of 5 minutes of stationary cycling, 5 repetitions without resistance and 5 repetitions at 25% of maximum load. The participants then performed 6 to 8 repetitions at about 80% of their maximum load with a 2-minute rest between each set. The participants performed as many repetitions as possible. The

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	load was adjusted every 2 weeks to remain at 80% of their maximum load. Each training session lasted about 90 minutes but the actual progressive strength training time was less than 6 minutes Control group: participants were encouraged to continue daily activities and training but not to engage in any progressive strength training Setting: community dwelling; training in hospital
Outcomes	Included outcomes: dynamic and isokinetic muscle strength; 3 metre TUG; maximum walking speed; 6-MWT; SIS - Swedish version; muscle tone assessed with the MAS Other outcomes: none
Notes	Maximum walking speed data obtained from authors. The physiotherapist that supervised the resistance training was the same that assessed dynamic strength and muscle tone outcomes Four year follow-up data available in secondary publication

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Stratified by gender unequal randomisation (2:1)
Allocation concealment (selection bias)	High risk	Non-sealed envelopes
Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	High risk	Physiotherapists who assessed isokinetic strength and gait performance outcomes were blinded to group assignment but the physiotherapist who assessed dynamic strength and muscle tone outcomes was not blinded; patient were not blinded but were told not to disclose group assignment Therapists not blinded at 4-year follow-up
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT analysis 1/25 (4%) losses; 1 participant dropped out from the intervention group due to an accident unrelated to strength training
Incomplete outcome data (attrition bias) End of follow-up	High risk	1/25 (4%) total losses at the end of 5-month follow-up, ITT analysis used 7/25 (28%) total losses at the end of 4-year follow-up and no ITT analysis used. 2 participants were unable to perform follow-up assessments due to new illness, 4 partici-

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Flansbjer 2008 (*Continued*)

		pants did not wish to continue at follow-up stage (but were reported in general good health)
Selective reporting (reporting bias)	Unclear risk	No trial protocol available
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

Galvin 2011

Methods	Design: randomised trial of mixed family-mediated exercise (FAME) plus usual care versus usual care - during (and after usual care) Randomised mechanism: independent person using computer-generated random numbers Allocation concealment: sealed envelopes Blinding: assessor not blinded to group allocation ITT: all randomised participants analysed using LOCF Measurements: end of intervention (8 weeks) and at follow-up (3 months) Withdrawals: 2 participants in the intervention group before outcome assessment (MI and stroke). In the control group 1 withdrew before outcome assessment (1 unwell), 2 died before follow-up assessment
Participants	Randomised: 37 participants Intervention: 19 participants: 7 males and 13 females; mean age 69.95 years (SD 11.7) Control: 18 participants: 13 males and 7 females; mean age 63.15 years (SD 13.3) Inclusion criteria: 2 weeks after stroke onset; diagnosed as first unilateral stroke; older than 18 years of age; participating in a physiotherapy programme; medically stable family member willing to participant in the programme Exclusion criteria: impairment of cognition, younger than 18 years
Interventions	Invention group: individualised FAME programs daily for 35 minutes for 8 weeks aiming to improve stability, gait velocity, and lower limb strength plus usual care (routine physiotherapy) Control group: usual care (routine physiotherapy) Setting: rehabilitation unit
Outcomes	Included outcome: lower limb Fugl-Meyer Assessment; MAS; BBS; 6-MWT
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Independent person using computer-generated random numbers

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Galvin 2011 (*Continued*)

Allocation concealment (selection bias)	Unclear risk	Sealed envelope; opaque and numbered unknown
Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	High risk	Assessor not blinded to group allocation
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT used; all randomised participants analysed using LOCF 3/37 (8%) lost from intervention group 2 (MI and stroke); control group 1 (1 unwell) , 2 died before follow-up assessment
Incomplete outcome data (attrition bias) End of follow-up	Unclear risk	ITT used; all randomised participants analysed using LOCF 5/37 (14%) total losses; control group 2 (died)
Selective reporting (reporting bias)	Low risk	Reported outcomes correspond to protocol NCT00666744
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

Glasser 1986

Methods	Design: randomised trial of cardiorespiratory training plus % usual care versus usual care - during usual care Randomisation: unknown Allocation concealment: unknown Blinding: unknown ITT: no withdrawals Measurements: end of intervention (10 weeks) Withdrawals: none
Participants	Randomised: 20 participants Intervention: 10 participants; 4 males and 6 females Control: 10 participants; 6 males and 4 females All participants age 40 to 75 years and were 3 to 6 months post-stroke; all participants exhibited hemiparesis with upper and lower extremity motor dysfunction; some showed sensory deficits and mild expressive or receptive aphasia Inclusion criteria: unknown Exclusion criteria: unknown

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Glasser 1986 (*Continued*)

Interventions	Intervention: cardiorespiratory training: isokinetic ergometer (Kinetron) training twice a day 5 days per week for 10 weeks; the intensity was maintained at 50 to 100 psi and duration of each session progressed from 10 to 30 minutes over the first 5 weeks Control: therapeutic exercise and gait training 1 hour per session 2 sessions per day, 5 days per week for 5 weeks Setting: physical therapy department
Outcomes	Included outcomes: gait speed maximal (6 metres) Other outcomes: FAPS
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not reported
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	High risk	Some attention control
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) End of intervention	Low risk	No losses
Selective reporting (reporting bias)	Unclear risk	No protocol available
Other bias	Unclear risk	Unclear
Imbalanced exposure	Unclear risk	Some attention control; may be a balanced exposure

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Globas 2012

Methods	Design: randomised, cross-over, controlled trial of high-intensity cardiorespiratory training plus usual care versus usual care - after usual care Randomised mechanism: computer-based pseudo-random number generator and Moses-Oakford assignment algorithm to perform stratified block allocation scheme (3 blocks, allocation 1:1) Allocation concealment: not reported Blinding: not blinded to participants; unknown if blinded to assessors Measurements: end of intervention (3 months); follow-up data (12 months) not used Withdrawals: 2 participants in the intervention group, 1 due to recurrent stroke, 1 due to transport problems. Other dropouts were reported but these occurred after the cross-over part of the trial began and are therefore uncontrolled
Participants	Randomised: 36 participants completed endpoint investigation, 32 participants completed 12-month follow-up Intervention: 18 participants: 14 males and 4 females; mean age 68.6 years (SD 6.7) Control: 18 participants: 15 males and 3 females; mean age 68.7 years (SD 6.1) Inclusion criteria: greater than 6 months post-stroke, confirmed diagnosis of ischaemic stroke via CT and/or MRI scans; hemiparetic gait as evaluated by a neurologist; at least 1 clinical sign for paresis, spasticity, or circumduction during gait; ability to treadmill walk at greater than 0.3 km/hr for 3 minutes Exclusion criteria: unstable angina pectoris; heart failure; haemodynamically significant valvular dysfunction; peripheral arterial occlusive disease; dementia; aphasia; major depression; already performing aerobic exercise training (> 20 minutes/day, > 1 day/week)
Interventions	Invention group: 39 sessions of 30 to 50 minutes of treadmill training 3 times/week for 3 months. Training intensity was 60% to 80% maximum heart rate. Treadmill training was progressed as tolerated by 1 to 5 minutes/week and by 0.1 to 0.3 km/hr every 1 to 2 weeks. Treadmill inclination was 0° Control group: usual care physiotherapy included passive, muscle tone-regulating exercises for upper and lower limbs with element of balance training. Performed for 1 hour for 1 to 3 times/week. Control group also completed cross-over period of treadmill training which was similar in protocol except for 2° inclination Setting: outpatients rehabilitation clinic
Outcomes	Included outcome: peak exercise capacity (VO_2 peak); 6-MWT; 10 Metre Timed Walks; 5-Chair Rise Test; BBS; RMI; SF-12
Notes	Cross-over part of the trial not included Advertisements used for recruitment

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Computer-based, stratified, block randomisation
Allocation concealment (selection bias)	Unclear risk	Not reported

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Globas 2012 (*Continued*)

Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	High risk	Outcome assessment not blinded
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT (LOCF) used 2/36 (6%) dropouts from intervention group (1 recurrent stroke,1 transportation problems)
Selective reporting (reporting bias)	Unclear risk	No protocol available
Other bias	High risk	May be self selection bias due to use of newspaper adverts
Imbalanced exposure	Unclear risk	Some attention control but time appears not to be balanced

Inaba 1973

Methods	Design: randomised trial of resistance training plus usual care versus usual care - during usual care Randomisation: unknown Allocation concealment: unknown Blinding: outcome assessor - unclear ITT: no Measurements: end of intervention (4 to 8 weeks) and 2-month follow-up Withdrawals: unclear: 101/177 patients lost to follow-up across the control and both intervention groups; 54 patients completed the control versus strength training comparison; estimated dropouts approximately 60 1 reason given for dropouts was discharge before end of the study
Participants	Randomised: 54 participants Intervention: 28 participants; 11 males and 17 females; age 55.6 years; < 3 months post-stroke Control: 26 participants; 15 males and 11 females; age 56.9 years; < 3 months post-stroke All participants had hemiparesis Inclusion criteria: hemiparesis arising from cerebrovascular accident secondary to thrombosis; embolus or haemorrhage; able to follow verbal or demonstrated directions; extend the involved lower limb against a load of 1.1 kg; independent ambulation Exclusion criteria: aetiology of aneurysm or trauma

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Inaba 1973 (*Continued*)

Interventions	Intervention: progressive resistive exercise once per day for 4 to 8 weeks; extension of the affected lower limb from 90º to full-knee extension whilst in the supine position on an Elgin table (machine weights), 5 repetitions at 50% maximum weight, and 10 at maximum Control: usual care: conventional functional training, including stretching, 4 to 8 weeks until discharge Setting: rehabilitation centre
Outcomes	Included outcomes: leg strength (10 repetition maximum) lacked variance measures number of participants able to perform 10 activities of daily living
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not reported
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Unclear
Incomplete outcome data (attrition bias) End of intervention	High risk	Large numbers of undocumented losses and no ITT analysis Unclear: 101/177 patients lost to follow-up across the control and both intervention groups; 54 patients completed the control versus strength training comparison; estimated dropouts approximately 60 1 reason given for dropouts was discharge before end of the study
Incomplete outcome data (attrition bias) End of follow-up	High risk	Large numbers of undocumented losses and no ITT analysis Unclear: 101/177 patients lost to follow-up across the control and both intervention groups; 54 patients completed the control versus strength training comparison; estimated dropouts approximately 60 1 reason given for dropouts was discharge

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Inaba 1973 (*Continued*)

		before end of the study
Selective reporting (reporting bias)	Unclear risk	No protocol available
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

Ivey 2010

Methods	Design: randomised trial of cardiorespiratory training versus usual care - after usual care Randomised: blocked allocation schema and computer-based pseudo-random number generator Allocation concealment: not reported Blinding: assessors not blinded ITT: no Measurements: end of intervention (6 months) Withdrawals: intervention group 10 participants and control group 17 participants lost to follow-up, 7 in both groups due to medical reasons unrelated to study procedures; 3 and 10 respectively due to general compliance issues
Participants	Randomised: 53 participants Intervention: 29 participants; 18 males and 11 females; mean age 62 years (SD 8) Control: 24 participants; 11 males and 13 women; mean age 60 years (SD 8) Inclusion criteria: chronic hemiparetic stroke (> 6 months); completed all conventional usual care Exclusion criteria: history of vascular surgery; vascular disorders of the lower limb; symptomatic peripheral arterial occlusive disease
Interventions	Invention group: treadmill training for 40 minutes 3 times/week for 6 months at a target intensity of 60% to 70% heart rate reserve, initially started with discontinuous training which progressed to continuous Control group: usual care: 13 targeted active and passive supervised stretching movements of the upper and lower body for 30 to 40 minutes 3 times/week for 6 months Setting: rehabilitation unit
Outcomes	Included outcome: peak aerobic capacity during treadmill protocol Other outcomes: resting and reactive hyperaemic calf blood flow in both paretic and non-paretic legs
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Blocked allocation schema and computer-based pseudo-random number generator

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Ivey 2010 (*Continued*)

Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	High risk	Participants described as not blinded, although there was matched exposure to staff
Blinding of outcome assessment (detection bias) All outcomes	High risk	Outcome assessors not blinded
Incomplete outcome data (attrition bias) End of intervention	High risk	ITT not reported 27/53 (51%) losses; intervention group 10 and control group 17 due to medical reasons unrelated to study procedures; 3 and 10 respectively due to general compliance issues
Selective reporting (reporting bias)	Unclear risk	Relationship to trial register entries unclear
Other bias	Unclear risk	Unclear
Imbalanced exposure	Low risk	Matched exposure

Ivey 2011

Methods	Design: randomised trial of cardiorespiratory training versus usual care - after usual care Randomised: mechanism unknown Allocation concealment: unknown Blinding: unknown ITT: no Measurements: end of intervention (6 months) Withdrawals: 13 participants withdrew at the end of intervention, reasons unknown
Participants	Randomised: 38 participants completed study; 51 may have been randomised Intervention: 19 participants; mean age 61 years (SD 8) Control: 19 participants; mean age 62 years (SD 10) Inclusion criteria: chronic hemiparetic stroke with mild to moderate hemiparetic gait; completed all conventional usual care; still present with residual hemiparetic gait deficits more than 6 months post-stroke Exclusion criteria: inability for insonation of the middle cerebral artery bilaterally
Interventions	Invention group: treadmill training for 40 minutes 3 times/week for 6 months at a target intensity of 60% to 70% heart rate reserve, initially started with discontinuous training which progressed to continuous Control group: usual care: 13 targeted active and passive supervised stretching movements of the upper and lower body for 30 to 40 minutes 3 times/week for 6 months Setting: rehabilitation unit

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Ivey 2011 (*Continued*)

Outcomes	Included outcomes: 6-MWT, peak aerobic capacity during treadmill protocol Other outcomes: middle cerebral artery blood flow velocity bilaterally during normocapnia and hypercapnia (6% CO_2)	
Notes		

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	High risk	Mechanism not described, number randomised not clear
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	High risk	Attention control was included
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) End of intervention	High risk	ITT analysis not reported There may have been losses after randomisation; up to 13/51 (25%)
Selective reporting (reporting bias)	Unclear risk	Relationship to trial register entries unclear
Other bias	Unclear risk	Unclear
Imbalanced exposure	Low risk	Matched exposure

James 2002

Methods	Design: randomised trial of mixed training versus no intervention - after usual care Randomisation mechanism: computer; method: blocks of 4 Allocation concealment: sealed envelopes Blinding: investigator ITT: yes Measurements: end of intervention (4 weeks) Withdrawals: control group 2 dropped out (neurological problems)
Participants	Randomised: 20 participants Intervention: 10 participants; 4 males and 6 females; age 76.1 years (SD 12.33); 1826 days post-stroke Control: 10 participants; 2 males and 8 females; age 80.8 years (SD 9.0); 1845 days post-stroke

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James 2002 (*Continued*)

	Inclusion criteria: stroke with hemiplegia; ability to give informed consent Exclusion criteria: no complicating medical history (cardiac, pulmonary, or neurological) ; no severe deficits in communication, memory or understanding; no painful orthopaedic conditions which could limit participation
Interventions	Intervention: mixed training, performed 90 to 120 minutes per day 3 days per week for 4 weeks Warm up followed by half squats; chair squats; small knee bends; standing on affected leg; single-leg half squat on affected leg; standing on unaffected leg and bending affected hip and knee; stair stepping; stepping on spot; walking indoors and outdoors; stepping forwards, backwards and sideways; opening and closing doors; walking and placing/ lifting objects; placing objects on shelves. Finished with a cool down; progression achieved increasing pulse rate from 50% (first 2 weeks) to 60% (last 2 weeks) of heart rate reserve, increasing total distance walked, and increasing step height and repetition number Control: no intervention Setting: patients' homes
Outcomes	Included outcomes: gait speed preferred (5 metres with mixed surfaces and a dead turn at 2.5 metres) Other outcomes: functional walking ability questionnaire; upright motor control test; SF-36 - older version
Notes	Unpublished thesis

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Block randomisation (groups of 4) using computer software
Allocation concealment (selection bias)	Unclear risk	Sealed envelopes; opaque and numbered unknown
Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Investigator blinded
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT analysis used 2/20 (10%) losses; 2/10 in control group (neurological problems)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear

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James 2002 (*Continued*)

Imbalanced exposure	High risk	Imbalanced exposure

Kang 2012

Methods	Design: randomised trial of cardiorespiratory training plus usual care versus non-exercise intervention plus usual care - after usual care Randomised: picking sealed envelopes Allocation concealment: sealed envelopes Blinding: assessor blinded to group allocation ITT: not reported Measurements: end of intervention (4 weeks) Withdrawals: intervention group 1 participant due to lack of lack of participation
Participants	Randomised: 21 participants Intervention: 11 participants; 6 males and 4 females, mean age 56.3 (SD 7.6); 13.5 days post-stroke (SD 4.0) Control: 10 participants; 6 males and 4 females, mean age 56.1 (SD 7.8); 15.1 days post-stroke (SD 7.4) Inclusion criteria: hemiparetic stroke 6 months after diagnosis; ability to walk for 15 minutes; without visual disabilities; MMSE score of 21 or higher; Brunnstrom stage greater than 4 Exclusion criteria: cardiovascular problems, orthopaedic, and other neurological diseases except stroke for influencing gait
Interventions	Invention group: treadmill training for 30 minutes/day 3 times/week for 4 weeks, progressed by 0.1 km/h each time stable walking for 20 seconds was achieved Control group: non-exercise intervention of general stretching added range of motion exercises plus usual care Setting: rehabilitation centre
Outcomes	Included outcomes: TUG; Functional Reach Test; 10 metre Maximal Walk Test; 6-MWT
Notes	1 arm of this 3-group RCT was not used (treadmill with optic flow intervention) 10 metre Maximal Walk Test data converted from m/sec into m/min

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Independent person picking sealed envelopes
Allocation concealment (selection bias)	Unclear risk	Sealed envelopes; opaque or numbered unknown

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Kang 2012 (*Continued*)

Blinding (performance bias and detection bias) All outcomes	High risk	Attention control was included
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Blinded outcome assessors
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT not reported 1/21 (5%) losses; intervention group 1 participant (lack of participation)
Selective reporting (reporting bias)	Unclear risk	No protocol available
Other bias	Unclear risk	Unclear
Imbalanced exposure	Low risk	Balanced exposure

Katz-Leurer 2003

Methods	Design: randomised trial of cardiorespiratory training plus usual care versus usual care - during usual care Randomisation mechanism: unknown; method: blocks based on side of lesion Allocation concealment: not reported Blinding: investigator; efficacy unknown ITT: unknown Measurements: end of intervention and 6-month post-stroke follow-up Withdrawals: intervention: no losses at the end of intervention, 5 losses at 6-month follow-up (4 not located, 1 died); control: 2 discontinued intervention (1 acute myocardial infarction, 1 deep vein thrombosis), 6 losses to follow-up (3 not located, 1 died, 2 recurrent stroke)
Participants	Randomised: 92 participants Intervention: 46 participants; 26 males and 20 females; age 62 years (SD 11); time since stroke unknown Control: 46 participants; 23 males and 23 females; age 65 years (SD 11); time since stroke unknown Inclusion criteria: age > 50 years; > 6 months after first ever stroke; walk 40 metres with +/- rest, +/- assistive device; ≥ stage 3 of Chedoke-McMaster Stroke Assessment: tolerate 45 minutes of exercise with rest intervals; non-participation in other therapy programs Exclusion criteria: comprehensive aphasia; not medically stable; musculoskeletal problems not associated with stroke
Interventions	Intervention: cardiorespiratory training: cycle ergometer; 8-week programme: (1) 20 minutes per day 5 days per week for 2 weeks of intermittent (10 x 1 minute) exercise progressing to 20 minutes continuous exercise by end of week 2; (2) 30 minutes per day 3 days per week for 6 weeks not exceeding 60% heart rate reserve; ACSM criteria for cardiorespiratory training met

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	Control: usual physiotherapy, occupational therapy, speech therapy and group activity/ exercise Setting: rehabilitation centre
Outcomes	Included outcomes: FIM; blood pressure; maximum cycle workload (Watts); comfortable walking speed (10 metre) gait endurance; distance until fatigue; FAI; stair climbing Other outcomes: SSS
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Block randomisation based on side of lesion; mechanism not reported
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Investigator blinded; efficacy unknown
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT not reported 2/96 (2%) lost at the end of intervention Intervention: no losses, control: 2 discontinued (1 acute myocardial infarction, 1 deep vein thrombosis)
Incomplete outcome data (attrition bias) End of follow-up	Unclear risk	ITT not reported 13/96 (14%) total losses at the end of 6-month follow-up Intervention: 5 (4 not located, 1 died); control 6 (3 not located, 1 died, 2 recurrent stroke)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	Unclear risk	Unclear

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Kim 2001

Methods	Design: randomised trial of resistance training versus non-exercise intervention - after usual care Randomisation mechanism: unknown; method: stratified based on gender, age (50 to 59 or 60+ years) and time since onset of stroke (6 months to 2 years/2+ years) Allocation concealment: unknown Blinding: investigator; participants blinded to purpose of interventions ITT: unknown Measurements: end of intervention (6 weeks) Withdrawals: none
Participants	Randomised: 20 participants Intervention: 10 participants; 7 males and 3 females; age 60.4 years (SD 9.5); 4.9 years post-stroke (SD 3.3) Control: 10 participants; 7 males and 3 females; age 61.9 years (SD 7.5); 3.2 years post-stroke (SD 1.2) All participants had hemiparesis Inclusion criteria: age > 50 years; > 6 months after first ever stroke; walk 40 metres with +/- rest, +/- assistive device; stage 3 of Chedoke-McMaster Stroke Assessment; tolerate 45 minutes of exercise with rest intervals; non-participation in other therapy programs Exclusion criteria: comprehensive aphasia; not medically stable; musculoskeletal problems not associated with stroke
Interventions	Intervention: isokinetic dynamometer (Kin-Com); 45 minutes per day 3 days per week for 6 weeks; after a warm up this comprised 30 minutes of 3 x 10 resisted repetitions of maximal effort concentric hip flexion/extension, knee flexion/extension and ankle dorsiflexion/plantarflexion of the affected lower limb; progression in the resistance was achieved by increasing the preload on the Kin-Com device; ACSM criteria for resistance training met Control: exactly the same as intervention except the resisted contractions replaced with passive range of motion movements Setting: rehabilitation centre
Outcomes	Included outcomes: gait preferred speed (metres/minute over 8 metres); gait maximum speed (metres/minute); stair climbing speed (stairs/second); composite strength score for the affected (trained) lower limb Other outcomes: stair walking performance (4 x 18 cm steps) self selected and maximal; physical functioning and mental health components of the SF-36; composite strength score for the affected (trained) lower limb
Notes	Data reported as change scores

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Mechanism unknown; method stratified based on gender, age (50 to 59 or 60+ years) , and time since onset of stroke (6 months to 2 years/2+ years)

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Kim 2001 (*Continued*)

Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	Low risk	Attention control used; participants blinded to purpose of interventions
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Investigator blinded; efficacy unknown
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT not reported No losses
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	Low risk	Balanced exposure

Kuys 2011

Methods	Design: randomised, single-blind trial of cardiorespiratory plus usual care versus usual care - during usual care Randomised: independent researcher generated random sequence in blocks of 4 using computer-generated random number sequence Allocation concealment: consecutively numbered envelopes Blinding: outcome assessors ITT: yes Measurements: end of intervention (6 weeks) and 3-month follow-up Withdrawals: intervention group (2 participants before end of intervention (1 withdrew, 1 due to fall); 2 participants before follow-up (1 moved, 1 medical condition); control group (3 participants before follow-up (1 unable to be contacted, 1 medical condition, 1 moved)
Participants	Randomised: 30 participants Intervention: 15 participants; 7 males and 8 females; mean age 63 years (SD 14); 52 days post-stroke (SD 32) Control: 15 participants; 7 males and 8 females; mean age 72 years (SD 17); 49 days post-stroke (SD 30) Inclusion criteria: first stroke diagnosed via CT; referred for physiotherapy rehabilitation; scored 2 or more MAS; medically stable; MMSE score of at least 24 Exclusion criteria: normal gait speed (> 1.2 m/s); cardiovascular problems
Interventions	Invention group: treadmill walking for 30 minutes 3 times/week for 6 weeks at 40% to 60% heart rate reserve (initially starting at 40% heart rate reserve, progressing by 5% to 10% increase each week until 60% reached) Control group: usual physiotherapy care Setting: 2 rehabilitation units

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Outcomes	Included outcomes: 10 metre Walk Test; comfortable walking speed; 6-MWT Other outcomes: walking kinematic data	
Notes		
Risk of bias		
Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Independent researcher generated random sequence in blocks of 4 using computer-generated random number sequence
Allocation concealment (selection bias)	Unclear risk	Consecutively numbered envelopes; not reported whether these were sealed and opaque
Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Blinded outcome assessors
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT analysis used 2/30 (7%) losses Intervention group 2 (1 withdrew, 1 due to fall)
Incomplete outcome data (attrition bias) End of follow-up	High risk	ITT analysis used 7/30 (23%) total losses Intervention group 2 (1 moved, 1 medical condition); control group 3 (1 unable to be contacted, 1 medical condition, 1 moved)
Selective reporting (reporting bias)	Low risk	All included outcomes were described in trial registry ACTRN12607000412437. Planned oxygen uptake measures not reported
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

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Langhammer 2007

Methods	Design: randomised trial of mixed training versus usual care - after usual care - i.e. intensive exercise (with emphasis on endurance, strength, and balance) versus regular exercise (no specific treatment was recommended) at discharge. Sample size calculation reported Randomisation: stratified randomisation according to gender and hemisphere lesion (minimisation). Method of randomisation: dice (uneven numbers versus even numbers) . Randomisation was performed by an investigator not involved with the patients or the treatment Allocation concealment: unclear. Protocol was sealed for 1.5 years from the start of the study Blinding procedure: outcome assessor blinded ITT: planned but not performed Measurements: 3, 6, and 12 months Withdrawals: 3 participants in the intensive group at discharge (1 dead and 2 withdrawals) and 5 (3 dead and 2 withdrawals) in the regular exercise group at discharge. 1 dead and 1 withdrawal at 3 months and 2 dead at 6 months in the regular exercise control group
Participants	Randomised: 75 participants Intervention: 35 participants, gender not reported; mean age 76 years (SD 12.7) Control: 40 participants, gender not reported; mean age 72 years (SD 13.6) Inclusion criteria: first-time stroke, confirmed by CT and voluntary participation Exclusion criteria: more than 1 stroke event, subarachnoid bleeding, tumour, other serious illness, brainstem or cerebellar stroke
Interventions	Intervention: intensive individualised training programme supervised by physiotherapists. Endurance = walking indoors and outdoors, stationary bicycling, stair walking, treadmill, etc, at 70% to 80% maximal pulse. Strength = push-ups, sit-ups, weight lifting, pulley, etc, at 50% to 60% calculated from 1 repetition maximum. Participants were also encouraged to maintain high activity level apart from that in the training sessions. Frequency: 2/3 times per week (daily in rehabilitation ward); minimum 20 hours every third month, in the first year after stroke Control: rehabilitation and follow-up treatments according to participants' needs but not on regular basis. No specific treatment was recommended. Participants were, however, encouraged to maintain high activity level Setting: general hospital, patients homes, and community service centres
Outcomes	Included outcomes: MAS; BI; grip strength measured with a Martin Vigorimeter; occurrences of falls and pain Other outcomes: none
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Use of dice (uneven numbers versus even numbers). In addition, randomisation was

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Langhammer 2007 (*Continued*)

		stratified according to gender and hemisphere lesion (minimisation). Randomisation was performed by an investigator not involved with the patients or the treatment
Allocation concealment (selection bias)	Unclear risk	Unclear; protocol was sealed for 1.5 years from the start of the study
Blinding (performance bias and detection bias) All outcomes	High risk	Some unstructured attention control "The amount of training was equal in the two groups". However, the control intervention was not given on a regular basis
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Experienced investigator, blinded to group allocation
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT analysis 8/75 (11%) losses at the end of intervention; 3 participants in the intensive exercise group at discharge (1 dead and 2 withdrawals) and 5 (3 dead and 2 withdrawals) in the control group at discharge
Incomplete outcome data (attrition bias) End of follow-up	Low risk	ITT analysis 12/75 (16%) losses at the end of follow-up; 1 dead and 1 withdrawal at 3 months and 2 dead at 6 months in the control group
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	Unclear risk	Imbalanced exposure

Lennon 2008

Methods	Design: pilot randomised study of cardiorespiratory training versus usual care - after usual care. Sample size calculation reported Randomisation: stratified randomisation (by age and sex) into 4 blocks of 6 using a sequence generator by an independent party Allocation concealment: opaque envelopes Blinding: single-blinded; unclear who was blinded ITT: no but only 1 participant dropped out in the control group Measurements: end of intervention (10 weeks) Withdrawals: 1 participant (refusal) in the control group

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Lennon 2008 (*Continued*)

Participants	Randomised: total 48 participants. Participants were recruited from the Stroke Rehabilitation Database (Dublin). Volunteers contacted the research team for initial screening Intervention: 24 participants; 14 males (58%) and 10 females (42%); mean age 59.0 years (SD 10.3); mean number of weeks from stroke 237.3 (SD 110.7) Control: 24 participants; 14 males (58%) and 10 females (42%); mean age 60.5 years (SD 10.0), mean number of weeks from stroke 245.3 (SD 169.8) Inclusion criteria: > 1 year post ischaemic stroke and over 18 years of age; participants were recruited irrespective of their ability to ambulate independently Exclusion criteria: O_2 dependence, angina, unstable cardiac conditions, uncontrolled diabetes mellitus, major medical conditions, claudication, cognitive impairment, or beta blocker medication
Interventions	Intervention: the Cardiac Rehabilitation Programme consisted of cycle ergometry training using either the upper or lower limbs. Exercise load was set at 50% to 60% of the participants' maximal heart rate. Resistance and speed were adjusted daily to ensure progression. Frequency: participants trained twice weekly for 30 minutes each time, for 10 weeks. Measurements performed at week 1 and re-assessment at week 10. All sessions were supervised by a physiotherapist Control: conventional physiotherapy and occupational therapy; no therapy contained an aerobic exercise component; measurements at week 1 and re-assessment at week 10. No further details provided Setting: outpatient rehabilitation
Outcomes	Included outcomes: VO_2; BMI; maximum cycle workload; resting systolic blood pressure; resting diastolic blood pressure; total cholesterol; FAI; HADS Other outcomes: resting heart rate; cardiac risk score; rate of perceived exertion
Notes	The trial authors maintained that their pilot study was too small for detecting functional benefits (a minimum of 120 participants in each group would have been required to show expected change in all primary outcomes); possible Hawthorn effect due to the fact that the control group did not receive the comparable non-exercise related attention to the intervention group

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Stratified randomisation (by age and sex) into 4 blocks of 6 using a sequence generator by an independent party
Allocation concealment (selection bias)	Unclear risk	Opaque envelopes; sealed and numbered unknown
Blinding (performance bias and detection bias) All outcomes	High risk	Control group did not receive the comparable non-exercise related attention to the intervention group

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Lennon 2008 (*Continued*)

Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Unclear who was blinded
Incomplete outcome data (attrition bias) End of intervention	Low risk	No ITT analysis 1/48 (2%) participant dropped out 1 (refusal) in the control group
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

Mead 2007

Methods	Design: explanatory randomised trial of mixed training versus non-exercise intervention - after usual care Randomisation mechanism: Internet application; minimisation dichotomised on sex; FIM score (120); age (70 years) Allocation concealment: sequence generation and allocation occurred simultaneously Blinding: investigator; participants encouraged to maintain blinding ITT: yes Measurements: end of intervention (12 to 14 weeks) and 4-month follow-up Withdrawals: intervention 0; control 4: 1 withdrew before intervention; 3 after end of intervention follow-up (1 stroke-related illness, 1 fall, 1 recurrent stroke)
Participants	Randomised: 66 participants Intervention: 32 participants; 18 males and 14 females; age 72.0 years (SD 10.4); median 171 (IQR 55 to 287) days post-stroke Control: 34 participants; 18 males and 16 females; age 71.7 years (SD 9.6); median 147.5 (IQR 78.8 to 235.5) days post-stroke Inclusion criteria: independently ambulatory; living within central or south Edinburgh Exclusion criteria: dysphasia or confusion severe enough to prevent informed consent or impair safety in exercise classes; medical contraindications to exercise training
Interventions	Intervention: mixed training: group circuit training performed 40 to 75 minutes per day 3 days per week for 12 to 14 weeks (36 sessions); after a warm-up the training comprised 2 components: (1) a cardiorespiratory circuit (cycle ergometry, raising and lowering an exercise ball, shuttle walking, standing chest press, and stair climbing and descending); (2) resistance training circuit (upper back exercise and triceps extension using Thera-Band, lifting a weighted pole, a sit-to-stand exercise); progression in duration, repetition number, speed, mass of objects and resistance of Thera-Band whilst maintaining a rate of perceived exertion (6 to 20 scale) of 13 to 60 Control: non-exercise intervention; seated relaxation involving deep breathing and progressive muscular relaxation; no muscle contractions were involved Setting: rehabilitation hospital

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Mead 2007 (*Continued*)

Outcomes	Included outcomes: FIM; NEADL; RMI; functional reach; TUG; sit-to-stand time; SF-36 - version 2; HADS; gait preferred speed; gait economy (VO_2 ml/kg/m); lower limb extensor explosive power (W/kg) Other outcomes: EMS (ceiling effect); FAC (ceiling effect)
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Internet software based minimisation dichotomised on sex; FIM score (120); age (70 years)
Allocation concealment (selection bias)	Low risk	Not applicable; sequence generation and allocation occurred simultaneously
Blinding (performance bias and detection bias) All outcomes	Low risk	Suitable attention control Quote: "Patients were blinded to the underlying hypothesis by reiterating the possible benefits of both interventions"
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Outcome assessor blinded Quote: "Outcome assessors were blinded by asking patients not to discuss their allocated intervention"
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT analysis 1/66 (2%) lost at the end of intervention; intervention 0; control 1
Incomplete outcome data (attrition bias) End of follow-up	Low risk	ITT analysis 4/66 (6%) total losses at the end of follow-up; intervention 0; control group (1 stroke-related illness, 1 fall, 1 recurrent stroke)
Selective reporting (reporting bias)	Low risk	Reported outcome correspond to proposal; Chief Scientist Office of the Scottish Executive (CZB/4/46)
Other bias	Unclear risk	Unclear
Imbalanced exposure	Low risk	Balanced exposure

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Moore 2010

Methods	Design: randomised, cross-over trial of cardiorespiratory training versus no intervention - after usual care - (i.e. intensive locomotor training - including treadmill training - versus delayed cardiovascular training) Randomisation: stratified randomisation according to severity of gait impairment Allocation concealment: sealed envelopes Blinding: investigators were not blinded ITT: not reported Measurements: end of intervention (4 weeks) Withdrawals: none reported
Participants	Randomised: 20 participants; mean age 50 years (SD 15); males 14, females 6; duration of post-stroke symptoms 13 months (SD 8); moderate/severe gait limitations 13/7 Intervention: the number of participants randomised to the immediate locomotor training group was not clearly reported Control: the number of participants randomised to the delayed locomotor training group was not clearly reported Inclusion criteria: patients with hemiparesis of > 6 months duration who were attending physical therapy after unilateral supratentorial stroke; all patients were required to walk > 10 metres overground without physical assistance and medical clearance Exclusion criteria: lower extremity contractures; significant osteoporosis; cardiovascular instability; previous history of peripheral or central nervous system injury, cognitive or communication impairment; inability to adhere to study requirements
Interventions	Intervention: the immediate locomotor training group received 4 weeks of intensive locomotor training after discharge from clinical physical therapy, which consisted of high intensity stepping practice on a motorised treadmill while wearing an overhead harness attached to a safety system. Frequency: 2 to 5 days per week for 4 weeks. Intensity: highest tolerable speed with velocity increased in 0.5 kph increments until participants reached 80% to 85% of predicted maximum heart rate or until the participants Rating of Perceived Exertion increased to 17 on the Borg scale. Partial weighted support was reduced in 10% increments as tolerated by participants who needed partial weighted support. Measurements were performed: 4 weeks before termination of usual physical therapy; soon after termination of usual physical therapy; after completion of the 4-week locomotor training; and again after a delay of 4 weeks after termination of locomotor training Control: delayed locomotor training group. The delayed group was also assessed 4 weeks before and after termination of usual physical therapy, but did not receive locomotor training or any other interventions for 4 weeks after termination of usual physical therapy. After this 4 week delay the participants received locomotor training as described above Setting: rehabilitation centre
Outcomes	Included outcomes: preferred gait speed; fastest gait speed; 12-MWT; O_2 cost; peak treadmill speed; VO_2 peak, TUG; BBS
Notes	Only data at the end of the first cross-over period were used for analyses

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**

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Moore 2010 (*Continued*)

Random sequence generation (selection bias)	Low risk	Stratified randomisation according to severity of gait impairment
Allocation concealment (selection bias)	Low risk	Sealed envelopes
Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	High risk	Investigators were not blinded
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT not reported No dropouts
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

Mudge 2009

Methods	Design: randomised trial of cardiorespiratory training versus non-exercise intervention training - after usual care (circuit-based rehabilitation versus social and educational sessions); power calculation reported Randomisation: computer-generated random numbers by an individual not associated with the trial Allocation concealment: not reported Blinding: assessor blinded (unmasking of the independent assessor occurred in 3 cases who inadvertently stated or implied their group allocation) ITT: yes Measurements: end of intervention (4 weeks) and 3-month follow-up Withdrawals: 1 participant in the intervention group (disinterest) and 2 participants in the control group (too busy) withdrew at the end of intervention. 3 further participants withdrew from the intervention group (health problems = 2; another stroke = 1) and 2 from the control group (health problems = 1; another stroke = 1) before the end of follow-up
Participants	Randomised: 58 participants; median age 71.5 years (range 39.0 to 89.0 years); median 3.9 years after stroke (range 0.5 to 18.7 years); participants were recruited through the Stroke Foundation of New Zealand, stroke clubs, and the local hospital stroke service. Potential candidates were invited to contact the investigators if they wished to participate. All participants walked independently and 26 (45%) used an assistive device. 55 participants completed the trial Intervention: 31 participants were randomised to circuit training; 19 males and 12 females; median age 76.0 (range 39.0 to 89.0); median onset of stroke 3.33 years (range

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	0.6 to 13.3) Control: 27 participants were randomised to social and educational sessions; 13 males and 14 females; median age 71.0 (range 44.0 to 86.0); median onset of stroke 5.8 years (range 0.5 to 18.7) Inclusion criteria: participants with 1 or more strokes more than 6 months earlier, had been discharged from rehabilitation and were able to walk independently (with an aid if necessary). Some residual gait difficulty was required, as defined by a score of less than 2 on at least 1 of the walking items of the physical functioning scale of the SF-36 Exclusion criteria: participants were excluded if they had progressive neurological diseases or significant health problems, more than 2 falls in the previous 6 months, unstable cardiac conditions, uncontrolled hypertension, or congestive heart failure
Interventions	Intervention: participants in the intervention group attended 12 group circuit sessions 3 times per week for 4 weeks. Groups were led by 1 of the principal investigators assisted by 2 physiotherapist students. There were 15 stations in the circuit which were graded to each participant's ability and progressed as tolerated. Each station contained either a task-oriented gait or standing balance activity (e.g. step-ups, balance beam, marching in place) or strengthening of a lower extremity muscle with the purpose to improve gait (e. g. lunges, Swiss ball squats, side leg lifts). Total exercise time was 30 minutes including stretching. Measurements performed post-intervention and at 3-month follow-up Control: participants in the control group attended 8 sessions - 4 social and 4 educational sessions (e.g. provide participants with relevant and useful information for everyday activities; provide intellectual stimulation and enjoyment sessions; play a game; cafe outing). Each session lasted 90 minutes. The control group was led by an occupational therapist. Measurements performed post-intervention and at 3-month follow-up Setting: rehabilitation clinic
Outcomes	Included outcomes: mean number of steps a day measured by the StepWatch Activity Monitor; walking speed and walking endurance Other outcomes: self reported confidence during activity of daily living and self reported mobility assessed by the ABCS, the RMI, and the PADS
Notes	Randomisation was revealed to each participant by the principal investigator after the second baseline assessment. The trial was limited by the small number of participants. Participants volunteered to participate and were likely to be highly motivated. The sample appeared in fact to be higher functioning in terms of gait speed. A gait endurance component was not included in the training circuit

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Computer-generated random numbers by an individual not associated with the trial
Allocation concealment (selection bias)	Unclear risk	Not reported

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Mudge 2009 (*Continued*)

Blinding (performance bias and detection bias) All outcomes	High risk	Attention control incorporated
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Assessor blinded; unmasking of the independent assessor occurred in 3 cases who inadvertently stated or implied their group allocation
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT reported 3/58 (5%) lost at the end of intervention: 1 participant in the intervention group (disinterest) and 2 participants in the control group (too busy) withdrew at the end of intervention
Incomplete outcome data (attrition bias) End of follow-up	Low risk	ITT reported 8/58 (14%) lost overall at the end of follow-up: 3 further participants withdrew from the intervention group (health problems = 2; another stroke = 1) and 2 from the control group (health problems = 1; another stroke = 1)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	Unclear risk	Attention control used but there is not an equivalent exposure

Ouellette 2004

Methods	Design: randomised trial of resistance training versus non-exercise intervention - after usual care Randomisation: unknown Allocation concealment: unknown Blinding: investigator ITT: yes Measurements: end of intervention (12 weeks) Withdrawals: intervention: 1 withdrew (cardiac problem) and 1 was lost at follow-up (hernia); control: 2 withdrew during intervention, 1 was lost at follow-up (abnormal ECG)
Participants	Randomised: 42 participants Intervention: 21 participants; number of males and females unknown; age 65.8 years (SD 11.5); 968 days post-stroke (SD 460) Control: 21 participants; number of males and females unknown; age 66.1 years (SD 9.

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	62); 779 days post-stroke (SD 558) Inclusion criteria: age ≥ 50 years; 6 months to 6 years after single unilateral mild/moderate stroke with residual lower extremity hemiparesis; community dwelling; independently ambulatory +/- walking aids; report of ?2 limitations on the physical function subscale of the SF-36; ability to travel to the exercise laboratory; willing to be randomised
Interventions	Intervention: progressive resistance training of both lower limbs performed 3 days/week for 12 weeks comprising 3 sets of 8 to 10 repetitions at 70% of 1 repetition maximum (1-RM); exercises were (1) seated bilateral leg press, and (2) unilateral knee extension, both using pneumatic resistance, and unilateral ankle; dorsiflexion; plantarflexion, both using weights; progression achieved via weekly assessment of 1-RM; warm up for each exercise was 4 repetitions of 25% 1-RM Control: non-exercise: bilateral range of motion and upper body flexibility exercises 3 days/week for 12 weeks Setting: exercise laboratory
Outcomes	Included outcomes: muscle strength (bilateral lower limb extension force); muscle strength (unilateral knee extension, ankle dorsiflexion and ankle plantarflexion); gait endurance (6-MWT), preferred speed (10 metres) and maximal speed (10 metres); chair rise time (5 repetitions); stair climb time (10 steps); late life function and disability instrument scale; SF-36 physical function subscale Other outcomes: muscle power - bilateral lower limb extension and unilateral knee extension; geriatric depression scale (data not reported); sickness impact profile; Ewarts self efficacy scale
Notes	Variance reported as standard error and converted to standard deviation

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not reported
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	High risk	Attention control incorporated
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Investigator blinded; efficacy unknown
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT 5/42 (12%) lost at the end of intervention: Intervention: 1 withdrew (cardiac problem) and 1 was lost at follow-up (hernia); control: 2 withdrew during intervention, 1

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		was lost at follow-up (abnormal ECG)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	Low risk	Balanced exposure

Park 2011

Methods	Design: randomised, single-blind trial of cardiorespiratory training plus usual care versus usual care - during usual care Randomisation mechanism: participants blindly pick 1 of 2 cards Allocation concealment: envelopes used Blinding: outcome assessor blind to group allocation ITT: not reported Measurements: end of intervention (4 weeks) Withdrawals: 2 participants (1 from both intervention and control groups) not regularly participating
Participants	Randomised: 27 participants Intervention: 14 participants; 7 males and 6 females; mean age 59.4 years (SD 8.5) Control: 13 participants; 5 males and 7 females; mean age 56.9 years (SD 7.8) Inclusion criteria: 6 months to 5 years post first stroke; walking speed < 0.7 m/s Exclusion criteria: auditory or visual deficits; no orthopaedic or cardiovascular conditions; cognitive impairment (> 25 MMSE score)
Interventions	Invention group: 4-phased walking training programme (progressing 150 metres to 200 metres to 300 metres to 500 metres) 1 hour 3 times/week for 4 weeks Control group: usual physiotherapy care 1 hour daily based on Bobath concept Setting: community based
Outcomes	Included outcomes: 10 metre Walk Test; 6-MWT; Community Walk test Other outcomes: walking ability questionnaire; activities-specific balance confidence scale
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Participants drew 1 of 2 cards from an envelope
Allocation concealment (selection bias)	Unclear risk	Envelopes used; nature of concealment unclear

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Park 2011 (*Continued*)

Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Person assessing outcome and analysing data blinded
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT analysis not reported 2/27 (7%) lost at the end of intervention: 1 from intervention and 1 from control groups (not regularly participating)
Selective reporting (reporting bias)	Unclear risk	No protocol available
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

Pohl 2002

Methods	Design: randomised trial of cardiorespiratory training plus % usual care versus usual care - during usual care Randomisation mechanism: unknown; method: equal block based on gait speed Allocation concealment: unknown Blinding: investigator; efficacy unknown ITT: no Measurements: end of intervention (4 weeks) Withdrawals: none
Participants	Randomised: 60 participants. 20 participants were randomised to the speed-dependent treadmill training group (STT); 20 participants to the limited progressive treadmill training group (LTT) and 20 participants to a conventional gait training group (CGT) Intervention: STT group = 20 participants; 14 males, 6 females; age 57.1 years (SD 13.9); 16.8 (20.5) weeks post-stroke. LTT group = 20 participants; 16 males, 4 females; age 58.2 years (SD 10.5); 16.2 (16.4) weeks post-stroke Control: 20 participants; 13 males, 7 females; age 61.6 years (SD 10.6); 16.10 (SD 18.5) weeks post-stroke Inclusion criteria: left or right hemiparesis for > 4 weeks; impaired gait; no or slight abnormal muscle tone (Ashworth Score 0 and 1); walk without assistance (FAC = 3); 10 metre walk time > 5 seconds and < 60 seconds; class B exercise risk (ACSM 1998); absence of known heart disease; no evidence of heart failure, ischaemia or angina at rest or exercise; appropriate rise in systolic blood pressure and absence of ventricular tachycardia during exercise Exclusion criteria: previous treadmill training; class C or D exercise risk (ACSM 1998); cognitive deficits (MMSE < 26 of 30); movement disorders; orthopaedic or gait-influencing diseases

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Interventions	Intervention: Group 1: STT (structured speed-dependent treadmill training); 30 minutes per day 3 days per week for 4 weeks; minimal body weight support (10%) for first 3 sessions; speed was increased progressively to the highest speed at which the patient could walk safely. The maximum-achieved speed was held for 10 seconds followed by a recovery period. Each time the patient successfully completed 10 seconds of walking at the set speed, the speed was increased during the next phase by 10%. Treadmill was run at 0% incline Group 2: LTT (limited progressive treadmill training group); 30 minutes per day 3 days per week for 4 weeks; minimal body weight support for first 3 sessions; speed was increased by no more than 5% of the maximum initial speed each week (20% over 4 weeks); treadmill was run at 0% incline Both intervention groups also received conventional physiotherapy 45 minutes/day 2 days/week for 4 weeks (included some gait training); total 12 hours of treatment Control: conventional gait training that comprised post neuromuscular facilitation and Bobath techniques; 30 minutes/day 3 days/week for 4 weeks. The control group also received conventional physiotherapy 45 minutes per day 2 days per week for 4 weeks (included some gait training); total 15 hours of treatment Setting: rehabilitation centre
Outcomes	Included outcomes: gait maximum speed; FAC Other outcomes: stride cadence (steps/minute); stride length (metres)
Notes	The control group (20 participants) was divided between the 2 relevant comparisons to avoid exaggeration of overall participant numbers in the analyses

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Mechanism unknown; randomised to equal blocks based on gait speed
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	High risk	Attention control used
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Investigator; efficacy unknown
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT no reported No losses
Selective reporting (reporting bias)	Unclear risk	No protocol available
Other bias	Unclear risk	Unclear

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Pohl 2002 (*Continued*)

Imbalanced exposure	Low risk	Imbalanced exposure favouring training (control 15 hours > intervention 12 hours)

Potempa 1995

Methods	Design: randomised trial of cardiorespiratory training versus non-exercise intervention - after usual care Randomisation: unknown Allocation concealment: unknown Blinding: unknown ITT: no Measurements: end of intervention (10 weeks) Withdrawals: none
Participants	Randomised: 42 participants Intervention: 19 participants; 8 males and 11 females Control: 23 participants; 15 males and 8 females All participants aged 43 to 70 years and were 216 days post-stroke (SD 43) All participants had upper and lower limb hemiparesis Inclusion criteria: medically stable; at least 6 months post-stroke; completed formal rehabilitation Exclusion criteria: patients with brain stem lesions; any clinical evidence that would preclude maximal exercise testing
Interventions	Intervention: cardiorespiratory training: cycle ergometer training for 30 minutes per day 3 days per week for 10 weeks; intensity 30% to 50% of maximal effort increasing to maximum sustainable over first 4 weeks Control: non-exercise intervention: passive range of motion exercises for 30 minutes per day 3 days per week for 10 weeks Setting: unknown
Outcomes	Included outcomes: blood pressure; maximum cycling work rate (Watts) Other outcomes: BMI; heart rate at rest and during maximal exercise; respiratory exchange rate and other respiratory variables; exercise duration; Fugl Meyer score
Notes	Variance reported as standard error and converted to standard deviation

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not reported
Allocation concealment (selection bias)	Unclear risk	Not reported

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Potempa 1995 (*Continued*)

Blinding (performance bias and detection bias) All outcomes	High risk	Attention control
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT not reported No losses
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	Low risk	Balanced exposure

Richards 1993

Methods	Design: randomised trial of mixed training plus usual care versus usual care - during usual care Randomisation mechanism: unknown; method: stratified on BI scores Allocation concealment: unknown Blinding: investigator; efficacy unknown ITT: no Measurements: end of intervention (5 weeks) Withdrawals: control group 3 (1 refusal, 2 unknown)
Participants	Randomised: 18 participants Intervention: 10 participants; 5 males and 5 females; age 69.6 years (SD 7.4 years); 8.3 days post-stroke (SD 1.4) Control: 8 participants; 2 males and 6 females; age 67.3 years (SD 11.2); 8.8 days post-stroke (SD 1.5) Inclusion criteria: within 50 km of treatment centre; males and females aged 40 to 80 years; 0 to 7 days after first stroke; middle cerebral artery syndrome identified by CT; under care of neurologist involved in study; willing to sign informed consent Exclusion criteria: other major medical conditions that would interfere with functional capacity or interfere with rehabilitation; patients who were independently ambulatory 1 week after stroke; patients who were unconscious at onset
Interventions	Intervention: mixed training: task-oriented gait training programme which used a tilt table, resisted exercises using a Kinetron, and treadmill walking, 104 minutes/day 5 days per week for 5 weeks; progression achieved via velocity and resistance (Kinetron) increments Control: traditional neurophysical techniques 109 minutes/day 5 days per week for 5 weeks Setting: hospital

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Richards 1993 (*Continued*)

Outcomes	Included outcomes: Barthel Ambulation scores; BBS; gait velocity Other outcomes: Fugl-Meyer balance; Fugl-Meyer upper and lower extremity scores
Notes	A second control group of early conventional therapy was not used for comparison since it differed from the institution usual care; it commenced earlier than usual during hospital care and had substantially longer contact time

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Stratified randomisation based on BI scores
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	High risk	Suitable attention control
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Investigator blinded; efficacy unknown
Incomplete outcome data (attrition bias) End of intervention	High risk	No ITT analysis 3/18 (17%) total losses at the end of intervention: intervention 0; control group 3 (1 refusal, 2 unknown)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	Low risk	Balanced exposure

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Richards 2004

Methods	Design: randomised trial of mixed training plus % usual care versus usual care - during usual care Randomisation mechanism: unknown; method: variable blocks stratified on time since stroke, disability, and age Allocation concealment: unknown Blinding: investigator; efficacy unknown ITT: yes Measurements: end of intervention (8 weeks) and 3-month follow-up Withdrawals: intervention: 9 (2 discontinued intervention: 1 hip fracture, 1 cardiac problem), 5 unavailable for follow-up; control: 8 (1 withdrew from intervention, 7 unavailable for follow-up)
Participants	Randomised: 63 participants Intervention: 32 participants; 22 males and 10 females; age 62.9 years (SD 12); 52 days post-stroke (SD 22) Control: 31 participants; 21 males and 10 females; age 60.7 years (SD 12); 52.8 days post-stroke (SD 18) Inclusion criteria: first or second stroke; men or women aged 30 to 89 years; impaired walking; follow verbal instructions; Barthel ambulation score ?10; gait speed of 10 to 60 cm/second Exclusion criteria: cerebral and subarachnoid haemorrhage; major medical problems (cancer, heart conditions, diabetes); receptive or expressive aphasia; lower extremity musculoskeletal disorders affecting gait
Interventions	Intervention: mixed training: task-oriented gait training programme which used a limb-load monitor, resisted exercises using a Kinetron, and treadmill walking, intervention occurred during physiotherapy sessions of 60 minutes per day 5 days per week for 8 weeks, progression achieved via velocity and resistance (Kinetron) increments Control: physiotherapy sessions of 60 minutes per day 5 days per week for 8 weeks not including the task-oriented gait training content above Setting: 2 rehabilitation units
Outcomes	Included outcomes: preferred walking speed; TUG; BI (ambulation subscore); BBS Other outcomes: kinematic gait analysis weakened by missing data in 50% participants; Fugl-Meyer leg and arm scores
Notes	A second control group of conventional therapy was not used for comparison since (1) it was much shorter in duration, and (2) started later than the training intervention. Outcome data imputed from graphs in publication

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Unclear; randomisation based on variable blocks stratified on time since stroke, disability, and age
Allocation concealment (selection bias)	Unclear risk	Not reported

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Richards 2004 (*Continued*)

Blinding (performance bias and detection bias) All outcomes	High risk	Suitable attention control
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Investigator blinded
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT analysis 5/63 (8%) losses at the end of intervention; intervention (2 discontinued intervention: 1 hip fracture, 1 cardiac problem); control (1 withdrew from intervention)
Incomplete outcome data (attrition bias) End of follow-up	High risk	ITT analysis 17/63 (27%) total losses at the end of follow-up; intervention (5 not available); control (7 not available)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	Low risk	Balanced exposure

Salbach 2004

Methods	Design: randomised trial of cardiorespiratory training versus non-exercise intervention - after usual care Randomisation mechanism: computer; method: stratified on gait speed Allocation concealment: unknown Blinding: investigator blinded (unblinded during assessment of intervention group 18/42 and control group 16/43) ITT: yes Measurements: end of intervention (6 weeks) Withdrawals: intervention: 3 discontinued (refused to travel, wanted both interventions, groin pain) with 2 of these lost to follow-up; control: 4 discontinued (MI, prostate cancer, fall + fracture, wanted other intervention) with 3 of these lost to follow-up
Participants	Randomised: 91 participants Intervention: 44 participants; 26 males and 18 females; age 71 years (SD 12); 239 days post-stroke (SD 83) Control: 47 participants; 30 males and 17 females; age 73 years (SD 8); 217 days post-stroke (SD 73) Inclusion criteria: first or recurrent stroke; gait deficit from recent stroke; mental competency; independently ambulatory for 10 metres +/- aids or supervision; ability to comprehend instructions; resident in community; discharged from rehabilitation; recent stroke 1 year or less

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	Exclusion criteria: neurological deficit caused by metastatic disease; gait function (6-MWT) equivalent to healthy norms; discharged to permanent care; comorbidity preventing participation in either intervention
Interventions	Intervention: cardiorespiratory training: task-oriented circuit training, performed 55 minutes per day 3 days per week for 6 weeks, comprising a warm up followed by 10 walking-related tasks (step ups, balance beam, kicking ball, stand up and walk, obstacle course, treadmill, walk and carry, speed walk, backward walking, stairs); progression of speed, load and degree of assistance Control: functional practice, whilst seated, of writing, keyboard use, and manipulating cards; some practice encouraged at home. 3 days per week for 6 weeks Setting: 2 rehabilitation centres or hospitals
Outcomes	Included outcomes: gait endurance 6-MWT; gait comfortable speed; gait maximal speed; TUG; BBS Other outcomes: activity-specific balance confidence scale
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Computer-based randomisation stratified on gait speed
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	High risk	Suitable attention control
Blinding of outcome assessment (detection bias) All outcomes	High risk	Investigator blinded Unblinded occurred during assessment of intervention group (18/42) and control group (16/43)
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT analysis 7/91 (8%) losses at the end of intervention assessment Intervention: 3 discontinued (refused to travel, wanted both interventions, groin pain) with 2 of these lost to follow-up; control: 4 discontinued (MI, prostate cancer, fall + fracture, wanted other intervention) with 3 of these lost to follow-up
Selective reporting (reporting bias)	Unclear risk	Protocol not available

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Other bias	Unclear risk	Unclear
Imbalanced exposure	Low risk	Balanced exposure

Sims 2009

Methods	Design: pilot randomised study of resistance training versus no intervention (i.e. a waiting-list comparison group) - after usual care. Sample size calculation reported Randomisation: computer-generated block randomisation by an independent investigator - blocks of 6 stratified by gender Allocation concealment: unclear Blinding: unclear ITT: yes Measurements: at the end of the training programme (10 weeks) and at 6-month follow-up Withdrawals: 1 participant did not complete the 10-week assessment; 5 participants (3 intervention, 2 control) did not complete the physical assessment at 10 weeks due to health reasons unrelated to the programme or time commitments. 43 participants completed the 6-month survey assessment
Participants	Randomised: 45 participants; 27 males and 18 females; mean age 67.13 years (SD 15.23), average time since stroke 13.2 months (SD 4.95) Intervention: 23 participants were allocated to the progressive resistance training group. 21 participants completed the 10-week programme (2 people became medically ineligible) Control: 22 participants were allocated to the waiting-list control group Inclusion criteria: stroke survivors with depressive symptoms Exclusion criteria: under 18 years; stroke < 6 months ago; inability to walk a distance of at least 20 metres independently with or without a gait assistive device; Prime-MD Patients Health Questionnaire (PHQ-9) score < 5; depression with psychotic features; alcohol or drug-related depression, schizophrenia; bipolar disorder; other psychiatric diagnoses; suicidal ideation; dementia; terminally ill; uncontrolled hypertension; unstable angina; and unstable insulin dependent diabetes
Interventions	Intervention: participants in the intervention group attended a community gymnasium twice/week for 10 weeks and trained under the supervision of an accredited fitness trainer. The training programme entailed moderate strengthening exercises (3 sets of 8/10 repetitions at a resistance of 80% of 1-RM) using machine weights for the major upper and lower limb muscle groups. Resistance was increased when participants were able to complete 3 sets of 10 repetitions of an exercise Control: the waiting-list controls received usual care and were asked not to do any resistance-type exercise (content of the 'usual care' intervention not specified) Setting: community-based setting
Outcomes	Included outcomes: CES-D; AQoL SF-12 Other outcomes: SIS; SWLS; LOT-R; Self Esteem Scale; RLOC

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Notes	Sample size calculation performed but sample obtained was smaller than that of the calculation (45 participants instead of 60). Small sample size. At baseline the intervention group had significantly lower depression scores than the comparison group. Impact of social interaction was not assessed The participants in the control group received more attention than simply usual care as they received a 10-week strength assessment

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Quote: "Following the baseline assessments participants were randomly allocated to the intervention or comparison group by a centrally located independent person using a computer generated block randomisation list, with blocks of six, stratified by gender. "
Allocation concealment (selection bias)	Low risk	Not applicable as participants allocated in blocks after recruitment and baseline assessment
Blinding (performance bias and detection bias) All outcomes	High risk	No attention control (waiting list comparison)
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Unclear
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT analysis 1 participant did not complete the 10-week assessment; 5 participants (3 intervention, 2 control) did not complete the physical assessment at 10 weeks due to health reasons unrelated to the programme or time commitments
Incomplete outcome data (attrition bias) End of follow-up	Low risk	ITT analysis 43/45 participants completed the 6-month survey assessment
Selective reporting (reporting bias)	Unclear risk	Included outcomes correspond with protocol ACTRN12605000613606
Other bias	High risk	At baseline the intervention group had significantly lower depression scores than the comparison group

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Sims 2009 (*Continued*)

Imbalanced exposure	High risk	Imbalanced exposure

Smith 2008

Methods	Design: randomised trial of cardiorespiratory training versus non-exercise intervention - after usual care (i.e. treadmill gait training versus weekly telephone calls - the main purpose of the trial was to explore the potential additional benefits of treadmill training) Randomisation: random matched-pair assignment. The investigator assigned a number to suitable participants and placed them in 1 of the intervention groups by 'the roll of a dice' (odd control, even treatment), or systematically allocated a participant to match a randomly assigned participant in the alternate group (minimisation?) Allocation concealment: unclear Blinding: clinical assessor not blinded ITT: not reported, but no withdrawals Measurements: at the end of the intervention (4 weeks) and then 6 weeks later Withdrawals: none
Participants	Randomised: 20 participants; age range 42 to 72 years Intervention: 10 participants, 8 males and 2 females; mean age 57.8 years (SD 7.0); time from stroke: 8 participants < 1 year and 2 participants $\geq$ 1 year < 2 years Control: 10 participants, 4 males and 6 females; mean age 56 years (SD 8.3); time from stroke: 8 participants < 1 year and 2 participants $\geq$ 1 year < 2 years Inclusion criteria: stroke in the middle cerebral artery territory more than 3 months but less than 2 years prior to enrolling in the trial; walking slower than pre-stroke Exclusion criteria: cognitive impairment; unable to ambulate; concomitant pathology that prevented walking on a treadmill
Interventions	Intervention: participants in the intervention group received 12 sessions of treadmill training (20 minutes each session) over 4 weeks plus weekly calls from the investigator enquiring about the quality of their week and encouraging them to keep a quality of life log. They wore a standard gait belt on the treadmill and had a practice session prior to the start of the trial. The starting speed on the treadmill was the speed at which the participant could walk during the practice session for 5 minutes with a rate of perceived exertion (RPE) $\leq$ 13. The speed was increased by 0.2 mph each time the participant walked for 10 consecutive minutes with a RPE $\leq$ 13 Control: participants in the control group received weekly calls from the investigator enquiring about the quality of their week and encouraging them to keep a quality of life log only Setting: community-based setting
Outcomes	Included outcomes: depression (Beck Depression Index), mobility Other outcomes: social participation (Stroke Impact Scale 3.0 subscales)
Notes	Very small sample size. Fitness outcomes not considered

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**

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Smith 2008 (*Continued*)

Random sequence generation (selection bias)	Unclear risk	Random matched-pair assignment. The investigator assigned a number to suitable participants and placed them in 1 of the intervention groups by 'the roll of a dice' (odd control, even treatment), or systematically allocated a participant to match a randomly assigned participant in the alternate group (minimisation?)
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	High risk	No suitable attention control
Blinding of outcome assessment (detection bias) All outcomes	High risk	Clinical assessor not blinded
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT analysis not reported No withdrawals
Incomplete outcome data (attrition bias) End of follow-up	Low risk	ITT analysis not reported No withdrawals
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

Takami 2010

Methods	Design: randomised trial of cardiorespiratory training plus % usual care versus usual care - during usual care Randomised: envelope method Allocation concealment: unknown Blinding: unknown ITT: not reported Measurements: end of intervention (3 weeks) Withdrawals: 2 participants from backward walking group and 1 participant from forward walking group due to family reasons
Participants	Randomised: 36 participants Intervention 1: 12 participants in backward walking group; 6 males and 6 females; mean age 66.1 years (SD 6.3); 13.2 days post-stroke (SD 8.4) Intervention 2: 12 participants in forward walking group; 9 males and 3 females; mean age 71.1 years (SD 10.6); 14.7 days post-stroke (SD 8.1)

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	Control: 12 participants; 5 males and 7 females; mean age 66.9 years (SD 10.6); 13.7 days post-stroke (SD 8.9) Inclusion criteria: ability to walk 10 metres using aids; post-stroke period of less than 5 weeks; FIM-Locomotion score of 5 or lower; perfect BBS and RMI scores Exclusion criteria: unknown
Interventions	Invention groups: body weight supported treadmill walking for 30 minutes then 10 minutes of either: backward or forward walking 6 times/week for 3 weeks Treadmill speed was progressed each week (0.8, 1.0, and 1.3 km/h) Control group: conventional training overground walking (150 to 200 m) for 40 minutes 6 times/week for 3 weeks Setting: rehabilitation unit and community settings
Outcomes	Included outcomes: BBS; RMI; 10 metre maximum walking speed; walking ratios during 10 metre forward walking and 5 metre backward walking; Motricity Index; FIM-Locomotion
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Described only as 'envelope method'
Allocation concealment (selection bias)	Unclear risk	Nature of envelopes not described
Blinding (performance bias and detection bias) All outcomes	High risk	Attention control is incorporated
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) End of intervention	Unclear risk	ITT not reported 3/36 (8%) losses at the end of intervention; 2 participants from backward walking training group and 1 participant from forward walking training group due to family reasons
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	Low risk	Balanced exposure

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Teixeira 1999

Methods	Design: randomised trial of mixed training versus no intervention - after usual care First iteration only of a lag control design; participants randomly allocated to immediate or delayed - participants allocated delayed intervention initially received no intervention Randomisation mechanism: unknown; method: unclear ('balanced blocks') Allocation concealment: unknown Blinding: unknown ITT: no Measurements: end of intervention (10 weeks) Withdrawals: none
Participants	Randomised: 13 participants Intervention: 6 participants; 1 male and 5 females; age 65.9 years (SD 10.2); 9.15 years post-stroke (SD 12.7) Control: 7 participants; 1 male and 6 females; age 69.4 years (SD 8.85); 6.4 years post-stroke (SD 6.2) All participants had unilateral stroke resulting in residual weakness or abnormal muscle tone or both Inclusion criteria: at least 9 months post-stroke; independently ambulatory with or without walking aids; no comprehensive aphasia Exclusion criteria: non-stroke related disability
Interventions	Intervention: mixed training: cardiorespiratory and lower extremity strength training 60 to 90 minutes per day 3 days per week for 10 weeks; cardiorespiratory training: graded walking plus stepping or cycling progressing from 10 to 20 minutes per day and from 50% to 70% of maximal cycling work rate over first 5 weeks; strength training: 7 exercises involving use of body weight and progressive resistive exercise using different masses and elastic bands (Thera-Band), each performed as 3 x 10 repetitions and progressing from 50% to 80% of 1 repetition maximum; warm up and warm down 10 to 20 minutes per day Control: no intervention Setting: unclear
Outcomes	Included outcomes: gait preferred speed (22 metre); Adjusted Activity Score; NHP Other outcomes: insufficient data to compare lower limb muscle strength (peak torque Nm); muscle tone assessment; and stair climbing
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Unclear. Quote: "randomly assigned to one of the two groups (treatment and control) with equal probability and balanced into similar blocks"
Allocation concealment (selection bias)	Unclear risk	Not reported

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Teixeira 1999 (*Continued*)

Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) End of intervention	Unclear risk	ITT not reported No losses
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

Toledano-Zarhi 2011

Methods	Design: mixed training plus non-exercise intervention versus non-exercise intervention after usual care Randomisation mechanism: mechanism not reported Allocation concealment: unknown Blinding: unknown ITT: yes (LOCF) Measurements: end of intervention (6 weeks) Withdrawals: 1 from intervention group (discontinued intervention)
Participants	Randomised: 28 participants Intervention: 14 participants; 11 male and 3 females; age 65 years (SD 10); 1 to 3 weeks post-stroke Control: 14 participants; 10 male and 4 females; age 65 years (SD 12); 1 to 3 weeks post-stroke All participants had very minor ischaemic stroke Exclusion criteria: systolic BP > 200 mmHg; diastolic BP > 110 mmHg; unstable angina; arrhythmia; congestive heart failure; ST depression $\geq$ 2 mm on resting ECG; arterioventricular block with no pacemaker; severe peripheral vascular disease; severe lung disease; orthopaedic or neurological disability; dementia or major depression
Interventions	Intervention: mixed training; 2 days per week for total of 3 hours/week for 6 weeks. Twice per week 35 to 55 minutes of treadmill, hand bike and cycle ergometer at 50% to 70% heart rate maximum. Once per week 45 to 55 minutes of group strength, flexibility and co-ordination Control: home-based booklet with guidance on strength and flexibility and encouragement to continue with usual community routine Setting: hospital

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Toledano-Zarhi 2011 (*Continued*)

Outcomes	Included outcomes: 6-MWT; Four Square Step Test; stair ascending and descending; treadmill performance (Bruce protocol); blood pressure
Notes	Described as 'aerobic' training but this is mixed training

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not reported
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) All outcomes	High risk	No suitable attention control
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not reported
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT 1/28 (4%) lost overall; from intervention group (discontinued intervention)
Selective reporting (reporting bias)	Unclear risk	No protocol available
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

van de Port 2012

Methods	Design: multicentre randomised trial of mixed training versus usual outpatient care - after usual care Randomised: online minimisation procedure Allocation concealment: unknown Blinding: assessors blinded to group allocation ITT: yes Measurements: end of intervention (12 weeks) and follow-up (24 weeks) Withdrawals: intervention group (4 participants did not start intervention, 1 participant withdrew without reason); control (1 participant at the end of intervention missing assessment, 2 participants died from cancer, 2 participants had recurrent stroke, 2 participants withdrew without reason)

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Participants	Randomised: 250 participants Intervention: 124 participants 82 males and 42 females; mean age 56 years (SD 10); time post-stroke 80.9 days (SD 13.0) Control: 126 participants; 80 males and 46 females; mean age 58 years (SD 10); time post-stroke 77.8 days (SD 15.0) Inclusion criteria: verified stroke (according to WHO definition); able to walk a minimum of 10 metres unassisted; discharged home from rehabilitation centre; requirement to continue physiotherapy during outpatients care Exclusion criteria: cognitive deficits (MMSE < 24 score); unable to communicate; lived more than 30 km from rehabilitation centre
Interventions	Invention group: circuit training programme for 90 minutes twice/week for 12 weeks. Training included 8 stations intended to improve walking competency. Each station exercise was performed for 3 minutes with 3 minutes recovery Control group: usual outpatient physiotherapy care, no restriction or detail given regarding time or duration of these sessions Setting: rehabilitation outpatient centre
Outcomes	Included outcomes: mobility domain of SIS; RMI; falls efficacy scale; NEADL; HADS; fatigue severity scale; Motricity index; 6-MWT; 5 metre comfortable walking speed test; timed balance test; TUG; modified stair test
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Participants stratified by rehabilitation centre using an online minimisation procedure
Allocation concealment (selection bias)	Low risk	Risk removed due to online dynamic allocation mechanism: i.e. there is no allocation list to conceal
Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Blinded outcome assessment. The efficacy of blinding was confirmed though statistical analysis of guesses of allocation
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT analysis used 8/250 (3%) losses. Slight imbalance in losses in the control group 7/124 and training group 1/126 Intervention group (4 participants did not start intervention, 1 participant withdrew

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		without reason); control group (1 participant at the end of intervention missing assessment, 2 participants died from cancer, 2 participants had recurrent stroke, 2 participants withdrew without reason)
Incomplete outcome data (attrition bias) End of follow-up	Low risk	ITT analysis used 8/250 (3%) overall losses
Selective reporting (reporting bias)	Unclear risk	Some planned secondary outcomes in the trial register (Dutch Trial Register NTR1534) were not reported or not followed up beyond baseline (chair rise, Motricity index). Other unplanned outcomes appear in report including functional ambulation categories (included in review) and the Letter Cancellation Task (but this is not included in this review)
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure Quote: "The circuit training group received 4461 treatment sessions compared with 4378 for the usual care group. The average treatment time per session was 72 (SD 39) minutes for the intervention group compared with 34 (SD 10) minutes for the control group ($P < 0.05$)."

Winstein 2004

Methods	Design: randomised trial of resistance training plus usual care versus usual care - during and after usual care Randomisation mechanism: unknown; method: stratified on Orpington Prognostic Scale (1.6 to 1.4 and 4.2 to 6.8) Allocation concealment: sealed envelopes Blinding: principal investigator but not outcome assessor ITT: no Measurements: end of intervention (4 to 6 weeks) and 9-month post-stroke follow-up Withdrawals: before end of intervention: 1 (treatment group, medical complications), 1 (control group, lost interest); before end of follow-up: 9 (treatment group 4, control group 5 - moved away or lost contact)
Participants	Randomised: 42 participants Intervention: 21 participants; 12 males and 8 females; time since stroke 17.3 days (SD 10.6) Control: 20 participants; 2 males and 8 females; time since stroke 15.4 days (SD 5.5) Age: 29 to 76 years, most 35 to 75 years

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	Inclusion criteria: first stroke; 2 to 35 days post-stroke; FIM score Exclusion criteria: peripheral nerve or orthopaedic condition limiting arm movement; function limited by cardiac disease; subarachnoid haemorrhage without infarction; progressive hydrocephalus; history of brain injury; severe aphasia, neglect, agitation or depression which could limit participation
Interventions	Intervention: upper limb movements resisted by gravity, free weights, Thera-Band and grip devices for fingers, 60 minutes/day 5 days per week for 4 to 6 weeks, high intensity for 3 days per week and low intensity higher velocity for 2 days/week, training target 20 hours total Control: standard care delivered by occupational therapy, included muscle facilitation exercises using neuro-developmental approach, electrical stimulation, stretching, ADL and caregiver training; activities included use of upper limbs Setting: inpatient rehabilitation hospital and outpatient clinic
Outcomes	Included outcomes: FIM (mobility and self care scores); FTHUE; composite measure of strength (sum of torque from extension and flexion of the wrist elbow and shoulder); grip and pinch force Other outcomes: Fugl-Meyer scores
Notes	Change from baseline scores reported and analysed

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Mechanism unknown; stratification based on Orpington Prognostic Scale (1.6 to 1.4 and 4.2 to 6.8)
Allocation concealment (selection bias)	Low risk	Sealed envelopes
Blinding (performance bias and detection bias) All outcomes	High risk	No suitable attention control Quote: "This treatment regimen was separate (i.e. it was added to the standard dose of occupational and physical therapy)."
Blinding of outcome assessment (detection bias) All outcomes	High risk	Outcome assessor not blinded
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT not reported 2/42 (5%) losses at the end of intervention: 1 treatment group (medical complications) , 1 control group (lost interest)
Incomplete outcome data (attrition bias) End of follow-up	High risk	ITT not reported 11/42 (26%) losses at the end of follow-up: 4 intervention group; 5 control group

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Winstein 2004 (*Continued*)

		(moved away or lost contact)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

Yang 2006

Methods	Design: randomised trial of mixed training versus no intervention - after usual care Randomisation mechanism: picking envelopes Allocation concealment: sealed envelopes Blinding: investigator ITT: unknown Measurements: end of intervention (4 weeks) Withdrawals: none
Participants	Randomised: 48 participants Intervention: 24 participants; 16 males and 8 females; age 56.8 years (SD 10.2); time since stroke > 1 year Control: 24 participants; 18 males and 8 females; age 60 years (SD 10.4); time since stroke > 1 year Inclusion criteria: first stroke < 1 year ago; not receiving rehabilitation; ambulatory, independent with no aids; medically stable to participate; able to understand instructions and follow commands Exclusion criteria: medical condition preventing participation; uncontrolled health condition for which exercise was contraindicated
Interventions	Intervention: mixed training performed as a circuit 30 minutes per day 3 days per week for 4 weeks; circuit comprised 6 x 5-minute lower extremity workstations (standing and reaching, sit-to-stand from chair, stepping forwards and backwards onto blocks, stepping sideways onto blocks, forward step-up onto blocks), participants encouraged to work hard, progression achieved by increasing number of repetitions in each 5-minute block, and increasing step and chair height, and the complexity of task; extended periods (5-minute) warrant acknowledgement of a cardiorespiratory component despite the author's title (progressive resistance strength training) Control: no intervention
Outcomes	Included outcomes: gait endurance (6-MWT - outcome assessor not blinded); gait speed preferred (10 metres); 3 metre TUG; step test; isometric strength of knee and hip ankle extension and flexion; and ankle dorsi-flexion and plantar-flexion (using handheld dynamometer) Other outcomes: gait cadence and stride length
Notes	Trial authors stated 'strength training' but intervention was actually mixed training. Data reported as absolute and change scores

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Yang 2006 (*Continued*)

Risk of bias		
Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Quote: "...independent person who picked one of the sealed envelopes 30 min before the start of the intervention."
Allocation concealment (selection bias)	Unclear risk	Sealed envelopes; opaque and numbered not reported
Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Investigator blinded
Incomplete outcome data (attrition bias) End of intervention	Low risk	ITT not reported No losses
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Unclear risk	Unclear
Imbalanced exposure	High risk	Imbalanced exposure

Zedlitz 2012

Methods	Design: multicentre randomised trial of mixed training plus non-exercise intervention versus non-exercise intervention - after usual care Randomised: block randomisation; implemented individually but also as a cluster when numbers were low Allocation concealment: sealed envelopes Blinding: assessor blind to group allocation ITT: yes Measurements: end of intervention (12 weeks) and end of 6-month follow-up Withdrawals: 1 participant withdrew consent before allocation into group; intervention group (5 participants, 3 withdrew consent before end of intervention, 1 participant withdrew due to poor health before end of intervention; 1 participant withdrew due to recurrent stroke before follow-up); control group (6 participants, 3 withdrew consent, 1 got new job; 1 family emergency, 1 participant recurrent stroke all before end of intervention; 4 participants lost to follow-up)
Participants	Randomised: 84 participants Intervention: 38 participants (1 withdrew consent); 22 males and 23 females; mean age 54.8 years (SD 9.1); 4.4 years post-stroke (SD 4.2)

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	Control: 45 participants; 21 males and 17 females; mean age 55.6 years (SD 8.8); 3.3 years post-stroke (SD 3.9) Inclusion criteria: sustained stroke > 4 months; reported severe fatigue; between ages 18 to 70 years; able to walk independently Exclusion criteria: severe cognitive deficits; severe comorbidity (cardiac disease, pulmonary disease); depression
Interventions	Invention group: treadmill walking and strength training ranging from 40% to 70% maximum heart rate for 2 hours twice/week for 12 weeks Control group: non-exercise control intervention (cognitive therapy) Setting: 8 rehabilitation centres
Outcomes	Included outcomes: Checklist Individual Strength-subscale Fatigue; HADS; SIS; 6-MWT
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Randomisation implemented (individually) in groups of 8 in each centre by picking 1 of 8 sealed envelopes. If only 4 patients were available in 1 centre then they were allocated as a group (cluster)
Allocation concealment (selection bias)	Unclear risk	Full nature and use of envelopes is unclear
Blinding (performance bias and detection bias) All outcomes	High risk	No attention control
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Blinded assessors used
Incomplete outcome data (attrition bias) End of intervention	Unclear risk	ITT analyses used 11/84 (13%) losses: intervention group (5 participants, 3 withdrew consent before end of intervention, 1 participant withdrew due to poor health before end of intervention); control group (6 participants, 3 withdrew consent, 1 got new job; 1 family emergency, 1 participant recurrent stroke all before end of intervention)

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Incomplete outcome data (attrition bias) End of follow-up	High risk	ITT analyses used 16/84 (19%) total losses: intervention group (1 participant withdrew due to recurrent stroke before follow-up); control group (4 participants lost to follow-up)
Selective reporting (reporting bias)	Low risk	Included outcomes correspond to trial registry NTR2704. Some proposed cognitive outcomes not present in publication (not relevant to this review)
Other bias	High risk	Self report questionnaires used Monitoring period before randomisation to identify those with potentially poor compliance Risk of self selection bias as newspaper adverts used for recruitment
Imbalanced exposure	High risk	Imbalanced exposure

6-MWT: 6 Metre Walking Test
9-HPT: 9-Hole Peg Test
12-MWT: 12-minute walk test
ABCS: Activities-Specific Balance Confidence Scale
ACSM: American College of Sports Medicine
ADL: activities of daily living
AQoL: Assessment of Quality of Life Instrument
ARAT: Action Research Arm Test
BBS: Berg Balance scale
BI: Barthel Index
BMI: Body Mass Index
BP: blood pressure
CES-D: Centre for Epidemiological Studies Depression scale
CT: computerised tomography
ECG: electrocardiogram
EMS: Elderly Mobility Scale
FAC: Functional Ambulation Classification
FAI: Frenchay Activity Index
FAPS: Functional Ambulation Profile Score
FIM: Functional Independence Measure
FTHUE: Functional Test of the Hemiparetic Upper Extremity
HADS: Hospital Anxiety and Depression Scale
ITT: intention-to-treat
LOCF: last observation carried forward
LOT-R: Life Orientation Test - Revised
MAS: Motor Assessment Scale
MI: myocardial infarction
MMSE: Mini Mental State Examination

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MRI: magnetic resonance imaging
NEADL: Nottingham Extended Activities of Daily Living
NHP: Nottingham Health Profile
PADS: Peripheral Arterial Diseases Walking Impairment questionnaire
RCT: randomised controlled trial
RLOC: Recovery Locus of Control Scale
RMA: Rivermead Motor Assessment
RMI: Rivermead Mobility Index
SD: standard deviation
SF-12: Short Form-12 Health Survey Questionnaire
SF-36: Short Form 36 Health Survey
SIS: Stroke Impact Scale
SSS: Scandinavian Stroke Scale
SWLS: Satisfaction with Life Scale
TUG: Timed Up and Go test
WHO: World Health Organization

Characteristics of excluded studies *[ordered by study ID]*

Study	Reason for exclusion
Ada 2003	Control intervention was described as training and included prescribed walking which confounds this walking study
Ada 2010	Not valid comparison (treadmill gait training with body weight support versus overground gait training)
Akbari 2006	Not valid control group
Au-Yeung 2009	Intervention not physical fitness training (short-form Tai Chi). Not valid control
Barreca 2007	Not progressive physical fitness training
Baskett 1999	Intervention not physical fitness training: it is described as exercise and activities but no evidence of progressive cardiorespiratory or strength elements, or both
Batchelor 2009	Intervention not physical fitness training (falls prevention programme)
Batchelor 2012	Exercise group also participate in non-exercise falls prevention including education and injury risk minimisation strategies
Blennerhassett 2004	Control group perform upper limb training intervention - this could theoretically influence lower limb outcome measures
Bourbonnais 2002	Comparison of upper and lower body exercise
Boysen 2009	Intervention does not meet the criteria for physical fitness training (self regulated exercise programme)
Brown 2002	Comparison of 2 exercise regimens

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(*Continued*)

Butefisch 1995	Non-random, alternate allocation on admission method
Carr 2003	No relevant comparisons: comparison of cardiorespiratory training and mixed training
Chanruengvanich 2006	Intervention does not meet the criteria for physical fitness training (self regulated exercise programme). Control not specified
Choi 2012	Not a RCT
Chu 2004	Control group perform upper limb training intervention - this could theoretically influence lower limb outcome measures
Chumbler 2010	Intervention had no definite intention of improving fitness
Chumbler 2012	Intervention had no definite intention of improving fitness
Corti 2012	Control group not classified as usual care
Davis 2003	No relevant comparisons: comparison of cardiorespiratory training and strength training
Davis 2006	Control group included physical activity: comprised 30 minutes 'sham' aerobic training (which was motorised and passive) and 30 minutes of 'sham' resistance training; resistance training was not passive as it involved movement of legs against gravity and it included some stretching
Dean 1997	Intervention not physical fitness training: although an element of progression is present the intervention is more 'practice' than training as defined in this review
Dean 2000	Not valid comparison (upper body versus lower body)
Dean 2012	Control not usual care, therefore comparison of 2 interventions containing exercise
Deniz 2011	Full English text unavailable
Desrosiers 2005	Not a valid comparison: control contained additional dose of 'usual arm therapy'. Intervention not physical fitness training: repetition and practice
Di Lauro 2003	Not a valid comparison. It is 'training' versus usual care; the intervention is also not physical fitness training
Dias 2007	Not valid control (not usual care)
Dickstein 1986	Intervention not physical fitness training: although post neuromuscular facilitation and Bobath approaches may contain resistive exercises. Patient allocation not randomised: based on hospital administration procedures
Dickstein 1997	Intervention not physical fitness training: muscle contractions not resisted and not progressive. Patient allocation not randomised: patients were sequentially assigned

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Dobkin 2010	Not valid comparison. Both groups received physiotherapy plus 10 metre walk. The experimental group received feedback about walking speed
Dong 2012	Non-exercise co-intervention
Dromerick 2005	Intervention not physical fitness training: constraint-induced movement therapy
Drummond 1996	Interventions not physical fitness training: 2 interventions: (1) leisure therapy, and (2) conventional occupational therapy
Duncan 2011	Control group not usual care
El-Senousey 2012	Not an exercise intervention
Faulkner 2012	Exercise co-intervention
Feys 1998	Intervention not physical fitness training: the physical activity (rocking movements) showed no progression of intensity
Fletcher 1994	Mixed population (35% of sample were not stroke)
Foley 2004	Mixed population. Only 15 of 338 participants (4%) had stroke
Franceschini 2009	Not valid comparison (treadmill gait training versus overground gait training)
Gelber 1995	Intervention not physical fitness training: comparison of traditional functional retraining and neurodevelopmental techniques. No relevant comparisons
Gilbertson 1998	Intervention not physical fitness training: home-based occupational therapy
Gregson 2006	Intervention was not fitness training, it was repetitive practice with no progression of exercise load except for some participants initially unable to complete the target number of repetitions (10)
Harrington 2010	Not valid comparison (exercise and education programme versus standard care)
Harris 2009	Intervention does not meet the criteria for physical fitness training (upper limb supplementary programme)
Hart 2004	Control intervention not a valid comparison: not usual care, not non-exercise and balance exercises confound
Helbostad 2004	Only 16 of 77 participants with stroke. Not a valid comparison, both groups receiving home training
Hidler 2007	No a valid comparison: comparison of 2 types of training
Higgins 2006	Intervention not fitness training: experimental group dexterity practice. Control group not valid: included physical activity (walking)

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(*Continued*)

Holmgren 2010	Control group not usual care
Howe 2005	Intervention not physical fitness training
Hu 2003	Intervention (Bobath) not physical fitness training
Hu 2006	Intervention not physical fitness training
Ishida 2001	Regular rehabilitation was suspended in some participants during a period of usual care. Not an exercise intervention
Jeong 2007	Intervention not physical fitness training (rhythmic music and specialised rehabilitation movements)
Jongbloed 1989	No relevant control group: comparison of 2 occupational therapy interventions. Interventions not physical fitness training
Jongbloed 1991	Intervention not physical fitness training: occupational therapy related to leisure activities
Kamps 2005	Not relevant control group: participants recruited after usual care yet were exposed to physiotherapy and 'ergotherapeutic' interventions
Kim 2012	Not usual care
Klassen 2005	Not a valid control group: low-intensity upper body exercise
Kwakkel 1999	Intervention not physical fitness training: investigation of rehabilitation of functional tasks. The principal author clarified that there was no progression of training intensity, the content of training was variable, and the treadmill training volume comprised only approximately 10% of patients
Langhammer 2009	Not valid comparison (physiotherapy versus self initiated exercise)
Langhammer 2010	Not valid comparison (treadmill gait training versus walking outdoors)
Laufer 2001	Intervention not physical fitness training: comparison of treadmill ambulation and overground walking. No relevant comparisons
LEAPS	No relevant comparisons
Lee 2010	Not valid control
Lemoncello 2011	Intervention not physical fitness training (swallowing exercises)
Lennon 2009	Not valid comparison (aerobic exercises plus lifestyle counselling and risk reduction programme versus risk reduction programme)
Leveille 1998	Contained few people with stroke: intervention (8%), control (9%). Not a valid intervention - other healthy living interventions included. Not a valid control - provided access to training facilities of intervention

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	group
Lin 2004	Intervention not physical fitness training
Lincoln 1999	Interventions not physical fitness training: comprised additional physiotherapy
Lincoln 2003	Comparison of 2 physiotherapy approaches
Lindsley 1994	This was published as an abstract only, the numerical data were not included and could not be recovered from the authors This intervention may have been training although the abstract contained no mention of progression
Liston 2000	Intervention not physical fitness training
Logan 2003	Intervention not physical fitness training: comprised leisure activities, although sport was included
Logigian 1983	No relevant comparisons: comparison of traditional and facilitation techniques. Intervention not physical fitness training: although training elements may have been included it would be difficult to separate the effect of training from therapy
Lord 2008	Not valid comparison (functional gait activities in community environments versus physiotherapy including treadmill gait training)
Luft 2004	Intervention not physical fitness training. Control group contained physical activity not linked to usual care
Luft 2008	Not valid comparison (treadmill gait training versus stretching exercises)
MacKay-Lyons 2010	Co-intervention (multi-component lifestyle intervention)
Macko 2005	Control group is not non-exercise or conventional treatment
Maeshima 2003	Not a relevant comparison: 2 exercise groups, with and without family members present
Marigold 2005	Not a relevant comparison: comparison of agility and stretching/weight shifting; neither is physical fitness training
Marzolini 2012	Not a RCT; no control group
Mayr 2007	Not valid comparison (Lokomat automatised gait training versus Bobath exercises)
McClellan 2004	Control group not non-exercise
Mehrholz 2008	Not valid comparison (automated locomotor gait training with physiotherapist assistance versus physical therapy)
Michaelsen 2006	Control group is not non-exercise

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(*Continued*)

Miller 2000	Intervention not physical fitness training
Moreland 2003	Control group not non-exercise
Nelles 2001	Not a valid comparison. Intervention not physical fitness training. Included non-stroke healthy controls
Nilsson 2001	Comparison not relevant: comparison of treadmill training with a physiotherapy approach to gait training (motor relearning programme) during usual care
Noh 2008	Not valid comparison. Active control. Experimental group received aquatic therapy - Ai Chi - whilst control group performed gym exercises
Olney 2006	Not a valid comparison: trial of supervised versus unsupervised exercise
Outermans 2010	Not valid comparison (high-intensity training programme versus low-intensity circuit rehabilitation programme)
Pan 2004	Not a valid comparison: trial of training versus unsupervised training
Pang 2006	Control group not non-exercise
Pang 2008	Not valid comparison (leg exercise programme versus arm exercise programme)
Pang 2010	Not a RCT
Parker 2001	Intervention not physical fitness training: leisure therapy and occupational therapy
Parry 1999	Intervention not physical fitness training: physiotherapy using Bobath and movement science approaches
Partridge 2000	Intervention not physical fitness training: comparison of amount of physiotherapy
Patterson 2010	Not a RCT
Peng 2002	Intervention not physical fitness training
Peurala 2005	Not a valid comparison (control group physical activity)
Peurala 2009	Not valid comparison (electromechanical gait training with physio assistance versus conventional physiotherapy)
Pitsch 2006	Intervention not physical fitness training
Platz 2001	Intervention not physical fitness training: arm ability training comprised simple functional and manipulative tasks
Platz 2005	2 interventions, neither were physical fitness training

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(*Continued*)

Pohl 2007	Not valid comparison (electromechanical gait training with body support)
Pomeroy 2001	Intervention not physical fitness training: weighted garments may offer increased resistance to muscle contraction but physical activity was neither controlled nor accurately monitored (patient's log book)
Quaney 2009	Not valid comparison (bicycle training versus strength training)
Rimmer 2000	Patient allocation not randomised: influenced by geographical location. The intervention was physical fitness training and comprised elements of cardiorespiratory, strength, and flexibility training
Rimmer 2009	Not valid comparison (moderate short duration exercise programme versus long-intensity longer duration exercise programme versus rehabilitation programme including walking training and strength exercises). No valid control
Rose 2011	Not a RCT
Saeys 2012	Not usual care co-intervention
Schmid 2012	Exercise group involved a co-intervention (yoga plus 20 minutes breathing exercises)
Shatil 2005	Intervention not physical fitness training. Control involved some strengthening
Sherrington 2008	Mixed population (results are not provided separately for stroke participants)
Shimada 2003	Only 25% of cohort were people with stroke (only 1 with stroke in control group)
Shimizu 2002	Non-random allocation (order of admission). Only 11 of 16 participants were people with stroke
Shimodozono 2013	Intervention not physical fitness training
Sivenius 2007	Comparison not relevant: comparison of 2 therapies
Smith 1981	Intervention not physical fitness training: intensive and conventional physiotherapy and occupational therapy
Sullivan 2002	Comparison not relevant: participants allocated 3 different treadmill training speeds
Sullivan 2007	Not valid comparison (treadmill gait training with body weight support versus leg cycling versus upper-extremity ergometry)
Sunderland 1994	Intervention not physical fitness training: comparison of orthodox and enhanced physiotherapy
Suputtitada 2004	Control is active walking
Takatori 2012	Not a RCT and co-intervention (strength training + whole body vibration)
Taylor-Piliae 2012	Intervention not physical fitness training (Tai Chi)

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Thielman 2004	Not a relevant comparison: resistance training versus task-related training
Thielman 2005	Not a relevant comparison: resistance training versus task-related training
Van der Lee 1999	Intervention not physical fitness training. Comparison not relevant: comparison between forced use of affected arm and use of both arms
Walker 1999	Intervention not physical fitness training: occupational therapy
Werner 1996	Intervention not physical fitness training: physical and occupational therapy
Werner 2002	Not a valid comparison: comparison of 2 forms of training
Widén Holmqvist 1998	Intervention not physical fitness training: home-based physical and occupational therapy
Wing 2006	Control group exposed to exercise (upper body)
Wolfe 2000	Intervention not physical fitness training: community-based physical and occupational therapy
Wu 2011	Intervention not physical fitness training
Xiao 2002	Not a valid comparison
Yang 2005	Not a valid comparison: control intervention included strengthening, function, mobility, and gait training after completion of usual care
Yang 2007	Intervention not physical training (ball exercise programme versus rehabilitation training)
Yen 2008	Not valid control (not usual care)
Yokokawa 1999	Ongoing rehabilitation classes were randomised, not individuals; this is biased

RCT: randomised controlled trial

Characteristics of studies awaiting assessment *[ordered by study ID]*

Arya 2012

Methods	Randomised, controlled, double-blinded trial
Participants	Intervention n = 51; control n = 52; mean 12.15 weeks post-stroke
Interventions	Meaningful task-specific training 4 to 5 days/week for 4 weeks

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Outcomes	Fugl-Meyer Assessment; ARAT; Graded WMFT; MAL
Notes	Only abstract available

Askim 2010

Methods	Randomised, controlled, single-blinded trial
Participants	Intervention n = 30; control n = 32; within 14 days post-stroke
Interventions	Intensive motor training programme every week for 4 weeks
Outcomes	BBS; BI; MAS; Step Test; 5-MWT, SIS
Notes	Cannot include as further detail needed from authors about intervention

Byun 2011

Methods	Non-randomised cross-over design
Participants	Intervention n = 15; control n = 15
Interventions	Sliding rehabilitation machine for 2 weeks followed by conventional training
Outcomes	FAC; BBS; 6-MWT; TUG; Korean Modified BI; MAS; MMT
Notes	Cannot include as further detail needed from authors about intervention

Dean 2010

Methods	Randomised, single-blinded, controlled trial
Participants	126 participants; unclear intervention or control group numbers
Interventions	Treadmill walking with supported body weight for 30 minutes; unclear frequency per week and length of intervention
Outcomes	Walking capacity; walking quality; walking perception; community participation and falls
Notes	Only abstract available

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Hoyer 2012

Methods	Randomised, single-blinded, controlled trial
Participants	Intervention n = 30; control n = 30
Interventions	Treadmill walking for 30 minutes daily, 5 times/week for 10 weeks
Outcomes	FAC; FIM; 10-MWT; 6-MWT
Notes	Cannot include as further detail needed from authors about intervention

Mayo 2011

Methods	Randomised trial
Participants	242 participants
Interventions	Unclear
Outcomes	Unclear
Notes	Only abstract available

Moore 2012

Methods	RCT
Participants	Intervention n = 20; control n = 20
Interventions	Unclear type of intervention; exercise for 1 hour 3 times/week for 19 weeks
Outcomes	Maximal cardiopulmonary exercise testing; 6-MWT; 10-MWT; TUG; BBS
Notes	Only abstract available

Olawale 2011

Methods	RCT
Participants	Intervention n = 20 (treadmill walking); n = 20 (overground walking); control n = 20
Interventions	Either treadmill walking or overground walking for 12 weeks
Outcomes	10-MWT; 6-MWT
Notes	Cannot include as further detail needed from authors about intervention

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Podubecka 2011

Methods	RCT
Participants	Unclear
Interventions	Cyclic movement training for 4 weeks
Outcomes	Power, balance, cardiorespiratory fitness and quality of life
Notes	Only abstract available; non-English full-text available

Qi 2011

Methods	RCT
Participants	Intervention n = 13; control n = 12
Interventions	Graded elastic strengthening training 3 times/week for 12 weeks
Outcomes	Fugl-Meyer Assessment; 6-MWT; BBS; muscle strength testing
Notes	Only abstract available

Richardson 2011

Methods	Randomised, controlled, single-blinded trial
Participants	Unclear
Interventions	Group and individual exercise programme, unclear further details
Outcomes	6-MWT
Notes	Only abstract available

Shaughnessy 2012

Methods	RCT; parallel assignment; open-label
Participants	90 stroke patients aged 40 to 85 years Inclusion criteria: 40 to 85 years old ischaemic stroke patients; stroke onset < 90 days at enrolment; hemiparetic gait disorder; patients able to walk 30 feet with or without assistive device; sufficient English comprehension to understand instructions, provide consent, and answer questions; live within 30 miles of the Greater Baltimore area Exclusion criteria: dementia (extended MMSE < 85 or < 80 if education level below 9th grade); untreated major clinical depression (CES-D > 16); heavy alcohol use (< 3 oz liquor, 3 x 4 oz glasses of wine, or 3 x 12 oz beers daily) ; active cancer, or any illness with a life expectancy of less than 6 months; any condition in which exercise activity would be contraindicated including, but not limited to: unstable angina, cardiac ischaemic event within the past 6 months, congestive heart failure (Stage III or IV), major orthopedic chronic pain or non-stroke neuromuscular

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Shaughnessy 2012 (*Continued*)

	disorders restricting exercise, oxygen-dependent COPD or peripheral neuropathy
Interventions	Intervention: home-based exercise prescriptions with weekly motivational telephone calls Control: stroke education programme with matched attention phone calls
Outcomes	AAP
Notes	NCT00431821

Shaughnessy 2012a

Methods	RCT
Participants	Intervention n = 57; control n = 56
Interventions	Treadmill intervention for 40 minutes 3 times/week for 6 months
Outcomes	Short Self-efficacy and Outcome Expectations for Exercise; Yale Physical Activity Survey; SIS
Notes	Cannot include as further detail needed from authors about intervention

Srivastava 2011

Methods	RCT
Participants	Unclear
Interventions	Intervention: treadmill with body weight support; treadmill without body weight support each for 20 minutes/day, 5 days/week for 4 weeks
Outcomes	Walking distance, speed and endurance, no further details given
Notes	Only abstract available

Tamura 2011

Methods	Unclear
Participants	Unclear
Interventions	Hip bridging exercises once a day, no further detail given
Outcomes	Leg muscle mass via dual-energy X-ray absorptiometry
Notes	Only abstract available and cannot include as further detail needed from authors about randomisation procedure

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Tung 2010

Methods	RCT
Participants	Intervention n = 16; control n = 16
Interventions	Sit-to-stand training for 15 minutes, 3 times/week for 4 weeks
Outcomes	BBS; extensor muscle strength of lower extremity
Notes	Cannot include as further detail needed from authors about control intervention

Van Puymbroeck 2012

Methods	RCT
Participants	Intervention n = 37; control n = 10
Interventions	Yoga intervention for 1 hour, twice/week for 8 weeks
Outcomes	ICF Measure of Participation and Activity; Stroke Survivor Quality of Life
Notes	Only abstract available

Yang 2010

Methods	Randomised, controlled, single-blind trial
Participants	Intervention n = 10; control n = 8
Interventions	Body weight supported treadmill training for 30 minutes, 3 times/week for 4 weeks
Outcomes	Motor threshold of abductor hallucis muscle; Fugl-Meyer Assessment
Notes	Cannot include as further detail needed from authors about usual care

5-MWT: 5 Metre Walk Test
6-MWT: 6-Minute Walk Test
10-MWT: 10 Metre Walking Test
AAP: Ambulatory Activity Profile
ARAT: Action Research Arm Test
BBS: Berg Balance Scale
BI: Barthel Index
CES-D: Center for Epidemiologic Studies Depression Scale
COPD: chronic obstructive pulmonary disease
FAC: Functional Ambulation Classification
FIM: Functional Independence Measure
MAL: Motor Activity Log

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MAS: Motor Assessment Scale
MMSE: Mini Mental State Examination
MMT: Manual Muscle Test
RCT: randomised controlled trial
SIS: Stroke Impact Scale
TUG: Timed Up-and Go Test
WMFT: Wolf Motor Function Test

Characteristics of ongoing studies *[ordered by study ID]*

Askim 2012

Trial name or title	Last study
Methods	RCT
Participants	390 participants; 10 to 16 weeks post-stroke
Interventions	Coaching on physical activity; 45 to 60 minutes, once/week for 18 months
Outcomes	MAS, BI, mRS, BBS, TUG, SIS, HADS, MMSE
Starting date	November 2011; by July 2012, 100 participants had been randomised
Contact information	Torunn Askim Email: torunn.askim@ntnu.no
Notes	NCT01467206

CIRCIT Trial

Trial name or title	CIRCIT Trial
Methods	RCT
Participants	282 participants
Interventions	Group circuit class therapy 5 days/week
Outcomes	6-MWT
Starting date	Unclear
Contact information	Susan Hillier Email: susan.hillier@unisa.edu.au
Notes	ACTRN 12610000096055

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ISRCTN 45392701

Trial name or title	Study protocol for a RCT
Methods	RCT
Participants	n = 24; ages 18+ years; 3 to 30 days post-stroke
Interventions	Cardiorespiratory training (arm cycling) versus usual care
Outcomes	Motricity Index; electromyography
Starting date	Not stated
Contact information	Nicola J Hancock Email: n.hancock@uea.ac.uk
Notes	ISRCTN 45392701

ISRCTN19090862

Trial name or title	Clinical efficacy of functional strength training for upper limb motor recovery early after stroke: neural correlates and prognostic indicators (FAST INdICATE)
Methods	RCT
Participants	n = 288, 14 to 60 days post-stroke
Interventions	Resistance training versus conventional physiotherapy
Outcomes	Primary outcome measure: ARAT Secondary outcome measure: WMFT, Hand Grip Force, Pinch Grip Force
Starting date	Anticipated start date 17 September 2012 Anticipated end date 16 May 2015
Contact information	Mr Andrew Walker, University of East Anglia, Faculty of Medicine, Queens Building, Norwich Research Park, Norwich, NR4 7TJ, UK Email: andrew.walker@uea.ac.uk
Notes	ISRCTN19090862

NCT00536562

Trial name or title	Cardiac rehabilitation for TIA patients (CR-TIA)
Methods	RCT, parallel assignment; single-blind (outcomes assessor)

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NCT00536562 (*Continued*)

Participants	200 participants Inclusion criteria: age > 20 years; documented TIA or mild non-disabling stroke within the previous 3 months; at least 1 of the following vascular risk factors: hypertension, ischaemic heart disease, diabetes mellitus, dyslipidaemia, or cigarette smoking Exclusion criteria: inability to speak or understand English or provide informed consent; severe aphasia that renders communication difficult or impossible; mRS $\geq$ 3; MMSE $\leq$ 20; evidence of intracranial haemorrhage confirmed by CT scan or MRI study; anticipated or recent (< 30 days) carotid endarterectomy, angioplasty and/or stenting; resides > 1 hour travel time from London or Ottawa; prior participation in a CCR programme; inability to perform expected exercise training of CCR programme; evidence of cardioembolic source for TIA/stroke such as atrial fibrillation, valvular disease, septal defect, or left ventricular wall motion abnormality; participation in another clinical trial that could interfere with the intervention or outcomes of the current study
Interventions	Intervention: comprehensive CCR programme plus usual care (include home-based exercise 2 days/week for 6 months) Control: usual care alone
Outcomes	Primary outcome measures: functional capacity; lipid profile; depression symptoms; cognition Secondary outcome measures: cerebrovascular and cardiovascular events; physiological, anthropometric, and behavioral vascular risk factors; neurocognitive measure; quality of life Time frame: 6 months
Starting date	Start: September 2007 Completion: March 2010
Contact information	Neville G Suskin, MBChB, MSc, University of Western Ontario and London Health Sciences Centre, London, Ontario, Canada, N6A 5A5 Tel: + 1 519 663 3488, email: neville.suskin@lhsc.on.ca
Notes	NCT00536562

NCT00786045

Trial name or title	Fitness Intervention Trial for Stroke (FITS)
Methods	RCT training after usual care
Participants	n = 60; 1 to 4 months post-stroke
Interventions	Home cycling programme versus control
Outcomes	Primary outcome measures: functional walking Secondary outcome measures: quality of life (SF-36)
Starting date	Study start date: November 2002 Study completion date: November 2009
Contact information	Nancy Mayo, BSc(PT), MSc, PhD, McGill University

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NCT00786045 (*Continued*)

Notes	NCT00786045

NCT00891514

Trial name or title	Inflammation and exercise in stroke
Methods	RCT
Participants	n = 150; age 40 to 75 years ≥ 6 months post-stroke
Interventions	Cardiorespiratory training versus non-exercise intervention
Outcomes	Primary outcome measures: tumour necrosis factor alpha; whole body insulin sensitivity; VO_2 peak; muscle insulin signalling Secondary outcome measures: circulating glucose; body composition; muscle triglyceride; number of macrophages
Starting date	Study start date: May 2009 Estimated study completion date: April 2014
Contact information	Jessica Hammers Te: +1 410 605 7000 ext 4842, email: jhammers@grecc.umaryland.edu
Notes	NCT00891514

NCT00908479

Trial name or title	Strength training for skeletal muscle adaptation after stroke
Methods	RCT; parallel assignment; open-label
Participants	52 participants Inclusion criteria: men and women aged 40 to 85 years, ?6 months post-stroke Completion of rehabilitation
Interventions	Intervention: lower extremity strength training (leg extension, press and curl), 45 to 60 minutes per day, 3 days per week for 3 months Control: active and passive upper and lower body stretching and range of motion, 45 to 60 minutes per day, 3 days per week for 3 months
Outcomes	VO_2 peak; bilateral single limb strength testing (leg extension and leg press); bilateral single limb muscle endurance (static and dynamic); mobility (timed 10-MWT and 6-MWT); BBS
Starting date	Start: April 2009 Completion: March 2012
Contact information	Fred Ivey, VA Maryland Health Care System, Baltimore, USA

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NCT00908479 (*Continued*)

Notes	NCT00827827

NCT01070459

Trial name or title	The effect of an aerobic exercise programme in stroke patients
Methods	RCT; parallel assignment; double-blind
Participants	50 participants Inclusion criteria: 3 to 6 weeks after first stroke; ability to follow simple verbal instructions and cycle for ? 1 minute at 20 Watt (at 50 revolution/minute)
Interventions	Intervention: regular rehabilitation plus cardiorespiratory training; 30 minutes per day, 3 days per week for 12 weeks. Cycle ergometry. After 12 weeks the experimental group is randomised to receive either feedback on how to continue training or no feedback Control: regular rehabilitation plus passive mobilisation
Outcomes	VO_2 peak, strength, walking, activities of daily living, post-stroke fatigue, depression, lifestyle, cardiovascular risk factors
Starting date	Start: February 2010 Completion: December 2011
Contact information	Vanroy Christel, University College Antwerp
Notes	NCT01070459

NCT01392391

Trial name or title	Exercise for sub-acute stroke patients in Jamaica (JAMMS)
Methods	RCT
Participants	n = 150; ischaemic stroke within 8 weeks
Interventions	Task oriented mixed training versus usual care
Outcomes	Primary outcome measures: thigh and abdominal muscle and fat; whole body protein and skeletal muscle; muscle myosin heavy chain isoform (MHC) proportions; leg strength; fitness VO_2 peak; glucose tolerance Secondary outcome measures: muscle tumour necrosis factor; mobility and balance
Starting date	Study start date: July 2011 Estimated study completion date: April 2016
Contact information	Contact: Richard Macko, MD Yel +1 410 605 7063; email: rmacko@grecc.umaryland.edu

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NCT01392391 (*Continued*)

Notes	NCT01392391

NCT01573585

Trial name or title	Fast muscle Activation and Stepping Training (FAST) post-stroke
Methods	RCT
Participants	n = 60; first stroke < 6 months ago
Interventions	Rapid movement training versus usual care
Outcomes	Primary outcome measures: Community Balance and Mobility Scale Secondary outcome measures: gait assessment self selected speed and changes in electromyography; physiological balance assessment by internal and external; activities-specific Balance Confidence Scale
Starting date	Study start date: July 2012 Estimated study completion date: June 2015
Contact information	Principal Investigator: S Jayne Garland, PT, PhD University of British Columbia
Notes	NCT01573585

NCT01574599

Trial name or title	Use of repetitive facilitative exercise program in established stroke
Methods	RCT
Participants	n = 40 stroke patients more than 6 months duration
Interventions	Repetitive exercise versus usual care
Outcomes	Primary outcome measures: Fugl-Meyer Arm Assessment Secondary outcome measures: Motor Activity Log; 9-Hole Peg Test; Box and Block Test; grasp; active range of motion
Starting date	Study start date: April 2012 Estimated completion date: April 2014
Contact information	Billie A Schultz, MD Tel: +1 507 255 3166, email: schultz.billie@mayo.edu
Notes	NCT01574599

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NCT01674790

Trial name or title	Combined effects of aerobic exercise and cognitive training on cognition after stroke
Methods	RCT
Participants	n = 20; stroke > 6 months ago
Interventions	Aerobic BWSTT exercise versus non-exercise comparison
Outcomes	Primary outcome measures: Flanker Test; Raven's Matrices Test; Sternberg Digit Memory Task Secondary outcome measures: peak oxygen consumption, Fatigue Severity Scale; Cognitive Failures Questionnaire; Montreal Cognitive Assessment; expression of BDNF and IGF-1 in peripheral blood samples
Starting date	Study start date: September 2012 Estimated study completion date: May 2013
Contact information	Marilyn MacKay-Lyons, PhD Tel: +1 9024942632, email: m.mackay-lyons@dal.ca
Notes	NCT01674790

10-MWT: 10 Metre Walk Test
6-MWT: 6-Minute Walk Test
ARAT: Action Research Arm Test
BBS: Berg Balance Scale
BI: Barthel Index
BWSTT: body weight supported treadmill training
CCR: Circulatory, Cardiac and Respiratory Research Program
HADS: Hospital Anxiety and Depression Scale
MAS: Motor Assessment Scale
MMSE: Mini Mental State Examination
mRS: modified Rankin Scale
RCT: randomised controlled trial
SIS: Stroke Impact Scale
TIA: transient ischaemic attack
TUG: Timed Up and Go Test
WMFT: Wolf Motor Function Test

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DATA AND ANALYSES

Comparison 1. Cardiorespiratory training versus control - end of intervention

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Case fatality	22	1020	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
1.1 During usual care	9	414	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
1.2 After usual care	13	606	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
2 Disability - Functional Independence Measure	3	162	Std. Mean Difference (IV, Random, 95% CI)	0.21 [-0.10, 0.52]
2.1 During usual care	1	52	Std. Mean Difference (IV, Random, 95% CI)	0.23 [-0.32, 0.78]
2.2 After usual care	2	110	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.29, 0.63]
3 Disability - Rivermead Mobility Index (scale 0 to 15)	3	146	Mean Difference (IV, Random, 95% CI)	1.56 [0.20, 2.92]
3.1 During usual care	2	110	Mean Difference (IV, Random, 95% CI)	1.43 [-0.62, 3.49]
3.2 After usual care	1	36	Mean Difference (IV, Random, 95% CI)	2.0 [0.53, 3.47]
4 Disability - Physical Activity and Disability Scale	1	58	Mean Difference (IV, Random, 95% CI)	16.9 [-15.15, 48.95]
4.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4.2 After usual care	1	58	Mean Difference (IV, Random, 95% CI)	16.9 [-15.15, 48.95]
5 Disability - combined disability scales	6	289	Std. Mean Difference (IV, Random, 95% CI)	0.37 [0.10, 0.64]
5.1 During usual care	2	85	Std. Mean Difference (IV, Random, 95% CI)	0.51 [-0.10, 1.12]
5.2 After usual care	4	204	Std. Mean Difference (IV, Random, 95% CI)	0.33 [-0.00, 0.67]
6 Risk factors - blood pressure, systolic	4	190	Mean Difference (IV, Random, 95% CI)	0.40 [-8.38, 9.18]
6.1 During usual care	1	12	Mean Difference (IV, Random, 95% CI)	26.33 [1.95, 50.71]
6.2 After usual care	3	178	Mean Difference (IV, Random, 95% CI)	-2.69 [-8.03, 2.66]
7 Risk factors - blood pressure, diastolic	4	190	Mean Difference (IV, Random, 95% CI)	-0.33 [-2.97, 2.31]
7.1 During usual care	1	12	Mean Difference (IV, Random, 95% CI)	1.0 [-10.46, 12.46]
7.2 After usual care	3	178	Mean Difference (IV, Random, 95% CI)	-0.41 [-3.12, 2.31]
8 Physical fitness - peak VO_2 (ml/kg/min)	7	247	Mean Difference (IV, Random, 95% CI)	2.46 [1.12, 3.80]
8.1 During usual care	1	12	Mean Difference (IV, Random, 95% CI)	3.43 [0.56, 6.30]
8.2 After usual care	6	235	Mean Difference (IV, Random, 95% CI)	2.32 [0.81, 3.84]
9 Physical fitness - gait economy, VO_2 (ml/kg/metre)	1	20	Mean Difference (IV, Random, 95% CI)	-0.08 [-0.28, 0.12]
9.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
9.2 After usual care	1	20	Mean Difference (IV, Random, 95% CI)	-0.08 [-0.28, 0.12]
10 Physical fitness - maximum cycling work rate (Watts)	4	221	Std. Mean Difference (IV, Random, 95% CI)	0.60 [0.18, 1.02]
10.1 During usual care	2	89	Std. Mean Difference (IV, Random, 95% CI)	0.32 [-0.34, 0.98]
10.2 After usual care	2	132	Std. Mean Difference (IV, Random, 95% CI)	0.83 [0.47, 1.18]
11 Mobility - functional ambulation categories	2	73	Mean Difference (IV, Random, 95% CI)	0.53 [0.21, 0.85]
11.1 During usual care	2	73	Mean Difference (IV, Random, 95% CI)	0.53 [0.21, 0.85]
11.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

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12 Mobility - maximal gait speed (m/min over 5 to 10 metres)	13	609	Mean Difference (IV, Random, 95% CI)	7.37 [3.70, 11.03]
12.1 During usual care	8	302	Mean Difference (IV, Random, 95% CI)	8.16 [2.07, 14.25]
12.2 After usual care	5	307	Mean Difference (IV, Random, 95% CI)	8.93 [3.54, 14.33]
13 Mobility - preferred gait speed (m/min)	8	425	Mean Difference (IV, Random, 95% CI)	4.63 [1.84, 7.43]
13.1 During usual care	2	48	Mean Difference (IV, Random, 95% CI)	4.02 [-3.36, 11.40]
13.2 After usual care	6	377	Mean Difference (IV, Random, 95% CI)	4.69 [1.57, 7.80]
14 Mobility - gait endurance (6-MWT metres)	10	468	Mean Difference (IV, Random, 95% CI)	26.99 [9.13, 44.84]
14.1 During usual care	4	123	Mean Difference (IV, Random, 95% CI)	17.20 [-7.76, 42.17]
14.2 After usual care	6	345	Mean Difference (IV, Random, 95% CI)	44.09 [17.20, 70.98]
15 Mobility - gait endurance (m/min)	3	154	Mean Difference (IV, Random, 95% CI)	8.87 [1.35, 16.40]
15.1 During usual care	2	63	Mean Difference (IV, Random, 95% CI)	12.24 [-3.41, 27.89]
15.2 After usual care	1	91	Mean Difference (IV, Random, 95% CI)	6.60 [-2.66, 15.86]
16 Mobility - 6 metre walking time (sec)	1	20	Mean Difference (IV, Random, 95% CI)	-3.32 [-8.52, 1.88]
16.1 During usual care	1	20	Mean Difference (IV, Random, 95% CI)	-3.32 [-8.52, 1.88]
16.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
17 Mobility - Stroke Impact Scale (mobility domain)	1	20	Mean Difference (IV, Random, 95% CI)	-3.20 [-17.14, 10.74]
17.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
17.2 After usual care	1	20	Mean Difference (IV, Random, 95% CI)	-3.20 [-17.14, 10.74]
18 Mobility - Community walk test (min)	1	25	Mean Difference (IV, Random, 95% CI)	-10.68 [-35.22, 13.86]
18.1 During usual care	1	25	Mean Difference (IV, Random, 95% CI)	-10.68 [-35.22, 13.86]
18.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
19 Mobility - Walking ability questionnaire (score 0 to 76)	1	25	Mean Difference (IV, Random, 95% CI)	1.04 [-6.71, 8.79]
19.1 During usual care	1	25	Mean Difference (IV, Random, 95% CI)	1.04 [-6.71, 8.79]
19.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
20 Physical function - Berg Balance Scale (score 0 to 56)	5	257	Mean Difference (IV, Random, 95% CI)	3.14 [0.56, 5.73]
20.1 During usual care	2	110	Mean Difference (IV, Random, 95% CI)	2.22 [-1.86, 6.31]
20.2 After usual care	3	147	Mean Difference (IV, Random, 95% CI)	4.06 [0.52, 7.60]
21 Physical function - Timed Up and Go (sec)	3	131	Mean Difference (IV, Random, 95% CI)	-2.52 [-6.18, 1.15]
21.1 During usual care	1	20	Mean Difference (IV, Random, 95% CI)	-2.10 [-6.27, 2.07]
21.2 After usual care	2	111	Mean Difference (IV, Random, 95% CI)	-3.94 [-11.65, 3.77]
22 Physical function - Functional Reach	1	20	Mean Difference (IV, Random, 95% CI)	2.20 [0.09, 4.31]
22.1 During usual care	1	20	Mean Difference (IV, Random, 95% CI)	2.20 [0.09, 4.31]
22.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
23 Mobility - Activities-Specific Balance Confidence scale (scores 0 to 100)	1	25	Mean Difference (IV, Random, 95% CI)	10.66 [-4.66, 25.98]
23.1 During usual care	1	25	Mean Difference (IV, Random, 95% CI)	10.66 [-4.66, 25.98]
23.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

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24 Health-related QoL - SF-36 emotional role functioning	1	28	Mean Difference (IV, Random, 95% CI)	11.0 [6.15, 15.85]
24.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
24.2 After usual care	1	28	Mean Difference (IV, Random, 95% CI)	11.0 [6.15, 15.85]
25 Health-related QoL - SF-36 physical functioning	1	28	Mean Difference (IV, Random, 95% CI)	10.60 [6.51, 14.69]
25.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
25.2 After usual care	1	28	Mean Difference (IV, Random, 95% CI)	10.60 [6.51, 14.69]
26 Health-related QoL - SF-12 Mental	1	36	Mean Difference (IV, Random, 95% CI)	9.30 [4.31, 14.29]
26.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
26.2 After usual care	1	36	Mean Difference (IV, Random, 95% CI)	9.30 [4.31, 14.29]
27 Health-related QoL - SF-12 physical	1	36	Mean Difference (IV, Random, 95% CI)	2.80 [-1.68, 7.28]
27.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
27.2 After usual care	1	36	Mean Difference (IV, Random, 95% CI)	2.80 [-1.68, 7.28]
28 Health-related QoL - EuroQol EQ-5D	1	102	Mean Difference (IV, Random, 95% CI)	2.59 [-4.47, 9.65]
28.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
28.2 After usual care	1	102	Mean Difference (IV, Random, 95% CI)	2.59 [-4.47, 9.65]
29 Mood - Beck Depression Index	1	20	Mean Difference (IV, Random, 95% CI)	0.60 [-1.60, 2.80]
29.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
29.2 After usual care	1	20	Mean Difference (IV, Random, 95% CI)	0.60 [-1.60, 2.80]
30 Mood - Hospital Anxiety and Depression Scale (HADS) - anxiety score	1	60	Mean Difference (IV, Random, 95% CI)	-1.94 [-3.80, -0.08]
30.1 During usual care	1	60	Mean Difference (IV, Random, 95% CI)	-1.94 [-3.80, -0.08]
30.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
31 Mood - Hospital Anxiety and Depression Scale (HADS) - depression score	1	60	Mean Difference (IV, Random, 95% CI)	-1.40 [-3.21, 0.41]
31.1 During usual care	1	60	Mean Difference (IV, Random, 95% CI)	-1.40 [-3.21, 0.41]
31.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

Comparison 2. Cardiorespiratory training versus control - end of retention follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Case fatality	5	304	Odds Ratio (M-H, Random, 95% CI)	1.0 [0.06, 16.48]
1.1 During usual care	3	226	Odds Ratio (M-H, Random, 95% CI)	1.0 [0.06, 16.48]
1.2 After usual care	2	78	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
2 Disability - Rivermead Mobility Index	1		Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 During usual care	1	66	Mean Difference (IV, Random, 95% CI)	-0.25 [-1.85, 1.35]
2.2 During usual care - ITT analysis using 'last observation carried forward' approach	1	84	Mean Difference (IV, Random, 95% CI)	0.04 [-1.47, 1.55]
2.3 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

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3 Disability - Nottingham Extended ADL	1	147	Mean Difference (IV, Random, 95% CI)	2.90 [-2.68, 8.48]
3.1 During usual care	1	64	Mean Difference (IV, Random, 95% CI)	2.64 [-5.57, 10.85]
3.2 During usual care - ITT analysis using 'last observation carried forward' approach	1	83	Mean Difference (IV, Random, 95% CI)	3.13 [-4.48, 10.74]
3.3 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4 Disability - Physical Activity and Disability Scale	1	58	Mean Difference (IV, Random, 95% CI)	19.90 [-17.58, 57.38]
4.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4.2 After usual care	1	58	Mean Difference (IV, Random, 95% CI)	19.90 [-17.58, 57.38]
5 Disability - Frenchay Activities Index (FAI)	1	79	Mean Difference (IV, Random, 95% CI)	1.0 [-1.55, 3.55]
5.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5.2 After usual care	1	79	Mean Difference (IV, Random, 95% CI)	1.0 [-1.55, 3.55]
6 Disability - Combined disability scales	3	220	Std. Mean Difference (IV, Random, 95% CI)	0.20 [-0.07, 0.46]
6.1 During usual care - ITT analysis using 'last observation carried forward' approach	1	83	Std. Mean Difference (IV, Random, 95% CI)	0.18 [-0.26, 0.61]
6.2 After usual care	2	137	Std. Mean Difference (IV, Random, 95% CI)	0.21 [-0.12, 0.55]
7 Physical fitness - maximum cycling work rate (Watts)	1	84	Mean Difference (IV, Random, 95% CI)	5.11 [-18.93, 29.15]
7.1 During usual care	1	84	Mean Difference (IV, Random, 95% CI)	5.11 [-18.93, 29.15]
7.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
8 Mobility - maximal gait speed (m/min)	5	312	Mean Difference (IV, Random, 95% CI)	6.71 [2.40, 11.02]
8.1 During usual care	3	152	Mean Difference (IV, Random, 95% CI)	7.92 [2.01, 13.83]
8.2 After usual care	2	160	Mean Difference (IV, Random, 95% CI)	5.33 [-0.96, 11.63]
9 Mobility - preferred gait speed (m/min)	2	126	Mean Difference (IV, Random, 95% CI)	0.72 [-6.78, 8.22]
9.1 During usual care	1	24	Mean Difference (IV, Random, 95% CI)	3.60 [-14.70, 21.90]
9.2 After usual care	1	102	Mean Difference (IV, Random, 95% CI)	0.14 [-8.08, 8.37]
10 Mobility - gait endurance (6-MWT metres)	4	233	Mean Difference (IV, Random, 95% CI)	33.37 [-8.25, 74.99]
10.1 During usual care	2	73	Mean Difference (IV, Random, 95% CI)	55.35 [12.38, 98.32]
10.2 After usual care	2	160	Mean Difference (IV, Random, 95% CI)	22.34 [-44.02, 88.69]
11 Mobility - peak activity index (steps/min)	1	58	Mean Difference (IV, Random, 95% CI)	12.20 [1.38, 23.02]
11.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
11.2 After usual care	1	58	Mean Difference (IV, Random, 95% CI)	12.20 [1.38, 23.02]
12 Mobility - max step rate in 1 min	1	58	Mean Difference (IV, Random, 95% CI)	12.10 [0.93, 23.27]
12.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
12.2 After usual care	1	58	Mean Difference (IV, Random, 95% CI)	12.10 [0.93, 23.27]
13 Mobility - Stroke Impact Scale (mobility domain)	1	20	Mean Difference (IV, Random, 95% CI)	5.90 [-7.97, 19.77]
13.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
13.2 After usual care	1	20	Mean Difference (IV, Random, 95% CI)	5.90 [-7.97, 19.77]

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14 Physical function - Berg Balance scale	1	84	Mean Difference (IV, Random, 95% CI)	-0.79 [-5.93, 4.35]
14.1 During usual care	1	84	Mean Difference (IV, Random, 95% CI)	-0.79 [-5.93, 4.35]
14.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
15 Health-related QoL - EuroQol EQ-5D	1	102	Mean Difference (IV, Random, 95% CI)	-6.96 [-14.86, 0.93]
15.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
15.2 After usual care	1	102	Mean Difference (IV, Random, 95% CI)	-6.96 [-14.86, 0.93]
16 Mood - Beck Depression Index	1	20	Mean Difference (IV, Random, 95% CI)	-1.30 [-3.67, 1.07]
16.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
16.2 After usual care	1	20	Mean Difference (IV, Random, 95% CI)	-1.30 [-3.67, 1.07]
17 Mood - Hospital Anxiety and Depression Scale (HADS) - anxiety score	1	53	Mean Difference (IV, Random, 95% CI)	-1.6 [-3.58, 0.38]
17.1 During usual care	1	53	Mean Difference (IV, Random, 95% CI)	-1.6 [-3.58, 0.38]
17.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
18 Mood - Hospital Anxiety and Depression Scale (HADS) - depression score	1	53	Mean Difference (IV, Random, 95% CI)	-2.7 [-4.40, 1.00]
18.1 During usual care	1	53	Mean Difference (IV, Random, 95% CI)	-2.7 [-4.40, 1.00]
18.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

Comparison 3. Resistance training versus control - end of intervention

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Case fatality	8	274	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
1.1 During usual care	3	113	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
1.2 After usual care	5	161	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
2 Physical fitness - composite measure of muscle strength	2	60	Std. Mean Difference (IV, Random, 95% CI)	0.58 [0.06, 1.10]
2.1 During usual care	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
2.2 During and after usual care	1	40	Std. Mean Difference (IV, Random, 95% CI)	0.47 [-0.16, 1.10]
2.3 After usual care	1	20	Std. Mean Difference (IV, Random, 95% CI)	0.84 [-0.09, 1.76]
3 Physical fitness - muscle strength, knee extension (Nm)	2	42	Mean Difference (IV, Random, 95% CI)	12.01 [-4.46, 28.47]
3.1 During usual care	1	18	Mean Difference (IV, Random, 95% CI)	4.80 [-5.98, 15.58]
3.2 After usual care	1	24	Mean Difference (IV, Random, 95% CI)	21.80 [4.92, 38.68]
4 Physical fitness - muscle strength, knee flexion (Nm)	2	42	Mean Difference (IV, Random, 95% CI)	9.61 [-5.01, 24.24]
4.1 During usual care	1	18	Mean Difference (IV, Random, 95% CI)	4.5 [-1.13, 10.13]
4.2 After usual care	1	24	Mean Difference (IV, Random, 95% CI)	20.5 [0.84, 40.16]
5 Mobility - maximal gait speed (m/min)	4	104	Mean Difference (IV, Random, 95% CI)	1.92 [-3.50, 7.35]
5.1 During usual care	1	18	Mean Difference (IV, Random, 95% CI)	8.40 [2.82, 13.98]
5.2 After usual care	3	86	Mean Difference (IV, Random, 95% CI)	1.00 [-4.57, 2.57]

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6 Mobility - preferred gait speed (m/min)	3	80	Mean Difference (IV, Random, 95% CI)	2.34 [-6.77, 11.45]
6.1 During usual care	1	18	Mean Difference (IV, Random, 95% CI)	9.0 [3.42, 14.58]
6.2 After usual care	2	62	Mean Difference (IV, Random, 95% CI)	-2.61 [-7.73, 2.51]
7 Mobility - gait endurance (6-MWT metres)	2	66	Mean Difference (IV, Random, 95% CI)	3.78 [-68.56, 76.11]
7.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
7.2 After usual care	2	66	Mean Difference (IV, Random, 95% CI)	3.78 [-68.56, 76.11]
8 Physical function - weight-bearing (% body weight - affected side)	1	18	Mean Difference (IV, Random, 95% CI)	11.80 [0.89, 22.71]
8.1 During usual care	1	18	Mean Difference (IV, Random, 95% CI)	11.80 [0.89, 22.71]
8.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
9 Physical function - stair climbing, maximal (sec/step)	2	61	Std. Mean Difference (IV, Random, 95% CI)	-0.04 [-0.86, 0.77]
9.1 During usual care	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
9.2 After usual care	2	61	Std. Mean Difference (IV, Random, 95% CI)	-0.04 [-0.86, 0.77]
10 Physical function - Timed Up and Go (sec)	1	24	Mean Difference (IV, Random, 95% CI)	-1.20 [-11.84, 9.44]
10.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
10.2 After usual care	1	24	Mean Difference (IV, Random, 95% CI)	-1.20 [-11.84, 9.44]
11 Health-related QoL - SF-36 mental health	1	20	Mean Difference (IV, Random, 95% CI)	2.8 [-4.95, 10.55]
11.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
11.2 After usual care	1	20	Mean Difference (IV, Random, 95% CI)	2.8 [-4.95, 10.55]
12 Health-related QoL - SF-36 physical functioning	1	20	Mean Difference (IV, Random, 95% CI)	1.47 [-4.24, 7.18]
12.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
12.2 After usual care	1	20	Mean Difference (IV, Random, 95% CI)	1.47 [-4.24, 7.18]
13 Mood - Centre for Epidemiologic Studies for Depression scale (CES-D)	1	88	Mean Difference (IV, Random, 95% CI)	-5.49 [-9.78, -1.20]
13.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
13.2 After usual care	1	88	Mean Difference (IV, Random, 95% CI)	-5.49 [-9.78, -1.20]
14 Mood - State Trait Anxiety Inventory - Trait Anxiety (score 20 to 80)	1	24	Mean Difference (IV, Random, 95% CI)	-2.70 [-10.57, 5.17]
14.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
14.2 After usual care	1	24	Mean Difference (IV, Random, 95% CI)	-2.70 [-10.57, 5.17]
15 Mood - State Trait Anxiety Inventory - State Anxiety (score 20 to 80)	1	24	Mean Difference (IV, Random, 95% CI)	-2.60 [-8.89, 3.69]
15.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
15.2 After usual care	1	24	Mean Difference (IV, Random, 95% CI)	-2.60 [-8.89, 3.69]

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Comparison 4. Resistance training versus control - end of retention follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Case fatality	3	138	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
1.1 During usual care	2	95	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
1.2 After usual care	1	43	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
2 Physical fitness - muscle strength, knee extension (Nm)	1	24	Mean Difference (IV, Random, 95% CI)	17.4 [-0.01, 34.81]
2.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
2.2 After usual care	1	24	Mean Difference (IV, Random, 95% CI)	17.4 [-0.01, 34.81]
3 Physical fitness - muscle strength, knee flexion (Nm)	1	24	Mean Difference (IV, Random, 95% CI)	17.60 [-2.17, 37.37]
3.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
3.2 After usual care	1	24	Mean Difference (IV, Random, 95% CI)	17.60 [-2.17, 37.37]
4 Mobility - maximal gait speed (m/min)	1	24	Mean Difference (IV, Random, 95% CI)	-19.80 [-95.77, 56.17]
4.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4.2 After usual care	1	24	Mean Difference (IV, Random, 95% CI)	-19.80 [-95.77, 56.17]
5 Mobility - gait endurance (6-MWT metres)	1	24	Mean Difference (IV, Random, 95% CI)	11.0 [-105.95, 127.95]
5.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5.2 After usual care	1	24	Mean Difference (IV, Random, 95% CI)	11.0 [-105.95, 127.95]
6 Physical function - Timed Up and Go (sec)	1	24	Mean Difference (IV, Random, 95% CI)	-3.10 [-16.67, 10.47]
6.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
6.2 After usual care	1	24	Mean Difference (IV, Random, 95% CI)	-3.10 [-16.67, 10.47]
7 Mood - Centre for Epidemiologic Studies for Depression scale (CES-D)	1	86	Mean Difference (IV, Random, 95% CI)	-8.92 [-13.03, -4.81]
7.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
7.2 After usual care	1	86	Mean Difference (IV, Random, 95% CI)	-8.92 [-13.03, -4.81]

Comparison 5. Mixed training versus control - end of intervention

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Case fatality	15	918	Odds Ratio (M-H, Random, 95% CI)	0.18 [0.03, 1.03]
1.1 During usual care	5	215	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]
1.2 After usual care	10	703	Odds Ratio (M-H, Random, 95% CI)	0.18 [0.03, 1.03]
2 Disability - Lawton IADL	2	113	Mean Difference (IV, Random, 95% CI)	0.83 [-0.51, 2.17]
2.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
2.2 After usual care	2	113	Mean Difference (IV, Random, 95% CI)	0.83 [-0.51, 2.17]

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3 Disability - Barthel Index (BI)	4	218	Mean Difference (IV, Random, 95% CI)	2.65 [-0.95, 6.25]
3.1 During usual care	1	40	Mean Difference (IV, Random, 95% CI)	6.70 [-3.97, 17.37]
3.2 After usual care	3	178	Mean Difference (IV, Random, 95% CI)	1.99 [-2.32, 6.29]
4 Disability - Rivermead Mobility Index (RMI)	2	308	Mean Difference (IV, Random, 95% CI)	0.48 [0.05, 0.91]
4.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4.2 After usual care	2	308	Mean Difference (IV, Random, 95% CI)	0.48 [0.05, 0.91]
5 Disability - Nottingham Extended ADL	1	66	Mean Difference (IV, Random, 95% CI)	-0.20 [-1.08, 0.68]
5.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5.2 After usual care	1	66	Mean Difference (IV, Random, 95% CI)	-0.20 [-1.08, 0.68]
6 Disability - Functional Independence Measure (FIM)	1	66	Mean Difference (IV, Random, 95% CI)	-0.10 [-1.70, 1.50]
6.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
6.2 After usual care	1	66	Mean Difference (IV, Random, 95% CI)	-0.10 [-1.70, 1.50]
7 Disability - Stroke Impact Scale (SIS-16)	1	94	Mean Difference (IV, Random, 95% CI)	6.0 [0.19, 11.81]
7.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
7.2 After usual care	1	94	Mean Difference (IV, Random, 95% CI)	6.0 [0.19, 11.81]
8 Disability - Combined disability scales	6	526	Std. Mean Difference (IV, Random, 95% CI)	0.24 [0.00, 0.47]
8.1 During usual care	1	40	Std. Mean Difference (IV, Random, 95% CI)	0.38 [-0.24, 1.01]
8.2 After usual care	5	486	Std. Mean Difference (IV, Random, 95% CI)	0.21 [-0.06, 0.48]
9 Risk factors - blood pressure, systolic	1	28	Mean Difference (IV, Random, 95% CI)	3.20 [-9.55, 15.95]
9.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
9.2 After usual care	1	28	Mean Difference (IV, Random, 95% CI)	3.20 [-9.55, 15.95]
10 Risk factors - blood pressure, diastolic	1	28	Mean Difference (IV, Random, 95% CI)	-0.80 [-5.59, 3.99]
10.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
10.2 After usual care	1	28	Mean Difference (IV, Random, 95% CI)	-0.80 [-5.59, 3.99]
11 Physical fitness - peak VO2 (ml/kg/min)	1	100	Mean Difference (IV, Random, 95% CI)	0.99 [0.35, 1.63]
11.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
11.2 After usual care	1	100	Mean Difference (IV, Random, 95% CI)	0.99 [0.35, 1.63]
12 Physical fitness - gait economy, VO2 (ml/kg/metre)	1	66	Mean Difference (IV, Random, 95% CI)	-0.01 [-0.03, -0.00]
12.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
12.2 After usual care	1	66	Mean Difference (IV, Random, 95% CI)	-0.01 [-0.03, -0.00]
13 Physical fitness - muscle strength, ankle dorsiflexion*	2	148	Std. Mean Difference (IV, Random, 95% CI)	0.80 [-0.82, 2.41]
13.1 During usual care	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
13.2 After usual care	2	148	Std. Mean Difference (IV, Random, 95% CI)	0.80 [-0.82, 2.41]
14 Physical fitness - muscle strength, knee extension*	3	202	Std. Mean Difference (IV, Random, 95% CI)	0.33 [0.05, 0.61]
14.1 During usual care	1	54	Std. Mean Difference (IV, Random, 95% CI)	0.29 [-0.25, 0.83]
14.2 After usual care	2	148	Std. Mean Difference (IV, Random, 95% CI)	0.36 [-0.02, 0.73]
15 Physical fitness - muscle strength, knee flexion	1	54	Mean Difference (IV, Random, 95% CI)	6.40 [-3.76, 16.56]
15.1 During usual care	1	54	Mean Difference (IV, Random, 95% CI)	6.40 [-3.76, 16.56]
15.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

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16 Physical fitness - muscle strength, elbow extension force (N)	1	18	Mean Difference (IV, Random, 95% CI)	-19.43 [-54.11, 15.25]
16.1 During usual care	1	18	Mean Difference (IV, Random, 95% CI)	-19.43 [-54.11, 15.25]
16.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
17 Physical fitness - muscle strength, elbow flexion force (N)	1	18	Mean Difference (IV, Random, 95% CI)	-15.50 [-54.04, 23.04]
17.1 During usual care	1	18	Mean Difference (IV, Random, 95% CI)	-15.50 [-54.04, 23.04]
17.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
18 Physical fitness - muscle strength, grip force (N)	1	18	Mean Difference (IV, Random, 95% CI)	-6.25 [-52.41, 39.91]
18.1 During usual care	1	18	Mean Difference (IV, Random, 95% CI)	-6.25 [-52.41, 39.91]
18.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
19 Physical fitness - muscle strength, grip strength (paretic hand)	2	165	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.36, 0.26]
19.1 During usual care	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
19.2 After usual care	2	165	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.36, 0.26]
20 Physical fitness - muscle strength, leg extensor power (affected leg) W/Kg	1	66	Mean Difference (IV, Random, 95% CI)	0.07 [-0.08, 0.22]
20.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
20.2 After usual care	1	66	Mean Difference (IV, Random, 95% CI)	0.07 [-0.08, 0.22]
21 Mobility - Functional Ambulation Categories	1	242	Mean Difference (IV, Random, 95% CI)	0.10 [-0.02, 0.22]
21.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
21.2 After usual care	1	242	Mean Difference (IV, Random, 95% CI)	0.10 [-0.02, 0.22]
22 Mobility - preferred gait speed (m/min)	9	639	Mean Difference (IV, Random, 95% CI)	4.54 [0.95, 8.14]
22.1 During usual care	3	153	Mean Difference (IV, Random, 95% CI)	3.37 [-2.63, 9.37]
22.2 After usual care	6	486	Mean Difference (IV, Random, 95% CI)	4.97 [0.68, 9.26]
23 Mobility - preferred gait speed (m/min); subgroup: therapy time	9	639	Mean Difference (IV, Random, 95% CI)	4.54 [0.95, 8.14]
23.1 Confounded	6	438	Mean Difference (IV, Random, 95% CI)	6.32 [1.08, 11.55]
23.2 Unconfounded	3	201	Mean Difference (IV, Random, 95% CI)	0.49 [-2.96, 3.94]
24 Mobility - gait endurance (6 MWT metres)	7	561	Mean Difference (IV, Random, 95% CI)	41.60 [25.25, 57.95]
24.1 During usual care	1	40	Mean Difference (IV, Random, 95% CI)	66.30 [-19.79, 152.39]
24.2 After usual care	6	521	Mean Difference (IV, Random, 95% CI)	40.68 [24.03, 57.33]
25 Mobility - Community Ambulation Speed (> 0.8 m/sec)	3	232	Odds Ratio (M-H, Random, 95% CI)	1.38 [0.78, 2.42]
25.1 During usual care	1	67	Odds Ratio (M-H, Random, 95% CI)	1.75 [0.46, 6.65]
25.2 After usual care	2	165	Odds Ratio (M-H, Random, 95% CI)	1.31 [0.70, 2.44]

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26 Physical function - Balance - Berg Balance scale	5	239	Std. Mean Difference (IV, Random, 95% CI)	0.32 [6.98, 0.65]
26.1 During usual care	3	119	Std. Mean Difference (IV, Random, 95% CI)	0.18 [-0.28, 0.64]
26.2 After usual care	2	120	Std. Mean Difference (IV, Random, 95% CI)	0.54 [0.17, 0.90]
27 Physical function - Balance - Functional reach	2	166	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.22, 0.50]
27.1 During usual care	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
27.2 After usual care	2	166	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.22, 0.50]
28 Physical function - Balance - Four Square Step Test	1	28	Mean Difference (IV, Random, 95% CI)	3.00 [-1.21, 7.21]
28.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
28.2 After usual care	1	28	Mean Difference (IV, Random, 95% CI)	3.00 [-1.21, 7.21]
29 Physical function - Balance - Timed balance test	1	242	Mean Difference (IV, Random, 95% CI)	0.32 [0.06, 0.58]
29.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
29.2 After usual care	1	242	Mean Difference (IV, Random, 95% CI)	0.32 [0.06, 0.58]
30 Physical function - Balance - combined outcome data	8	575	Std. Mean Difference (IV, Random, 95% CI)	0.26 [0.04, 0.49]
30.1 During usual care	3	119	Std. Mean Difference (IV, Random, 95% CI)	0.18 [-0.28, 0.64]
30.2 After usual care	5	456	Std. Mean Difference (IV, Random, 95% CI)	0.30 [0.02, 0.57]
31 Physical function - Action Research Arm Test	1	18	Mean Difference (IV, Random, 95% CI)	-1.40 [-16.58, 13.78]
31.1 During usual care	1	18	Mean Difference (IV, Random, 95% CI)	-1.40 [-16.58, 13.78]
31.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
32 Physical function - Timed Up and Go (sec)	4	418	Mean Difference (IV, Random, 95% CI)	-1.37 [-2.26, -0.47]
32.1 During usual care	1	62	Mean Difference (IV, Random, 95% CI)	-2.0 [-11.24, 7.24]
32.2 After usual care	3	356	Mean Difference (IV, Random, 95% CI)	-1.75 [-3.37, -0.12]
33 Physical function - Timed Up and Go (sec) - sensitivity analysis - unconfounded trials	2	128	Mean Difference (IV, Random, 95% CI)	-1.13 [-2.91, 0.65]
33.1 During usual care	1	62	Mean Difference (IV, Random, 95% CI)	-2.0 [-11.24, 7.24]
33.2 After usual care	1	66	Mean Difference (IV, Random, 95% CI)	-1.10 [-2.91, 0.71]
34 Health-related QoL - EuroQol (Health State)	1	67	Mean Difference (IV, Random, 95% CI)	0.12 [-0.03, 0.27]
34.1 During usual care	1	67	Mean Difference (IV, Random, 95% CI)	0.12 [-0.03, 0.27]
34.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
35 Health-related QoL - EuroQol (self perceived health)	1	67	Mean Difference (IV, Random, 95% CI)	9.10 [-0.14, 18.34]
35.1 During usual care	1	67	Mean Difference (IV, Random, 95% CI)	9.10 [-0.14, 18.34]
35.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
36 Health-related QoL - SF-36 physical functioning	2	112	Std. Mean Difference (IV, Random, 95% CI)	0.48 [0.10, 0.85]
36.1 During usual care	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
36.2 After usual care	2	112	Std. Mean Difference (IV, Random, 95% CI)	0.48 [0.10, 0.85]
37 Health-related QoL - SF-36 social role functioning	2	112	Std. Mean Difference (IV, Random, 95% CI)	0.48 [-0.22, 1.17]
37.1 During usual care	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
37.2 After usual care	2	112	Std. Mean Difference (IV, Random, 95% CI)	0.48 [-0.22, 1.17]
38 Health-related QoL - SF-36 physical role functioning	3	178	Std. Mean Difference (IV, Random, 95% CI)	0.56 [0.26, 0.86]

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38.1 During usual care	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
38.2 After usual care	3	178	Std. Mean Difference (IV, Random, 95% CI)	0.56 [0.26, 0.86]
39 Health-related QoL - SF-36 emotional role functioning	1	93	Mean Difference (IV, Random, 95% CI)	15.5 [2.98, 28.02]
39.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
39.2 After usual care	1	93	Mean Difference (IV, Random, 95% CI)	15.5 [2.98, 28.02]
40 Health-related QoL - Stroke-Adapted Sickness Impact profile	1	83	Mean Difference (IV, Random, 95% CI)	-2.70 [-7.81, 2.41]
40.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
40.2 After usual care	1	83	Mean Difference (IV, Random, 95% CI)	-2.70 [-7.81, 2.41]
41 Mood - Stroke Impact Scale emotion score	2	335	Mean Difference (IV, Random, 95% CI)	2.87 [-3.40, 9.14]
41.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
41.2 After usual care	2	335	Mean Difference (IV, Random, 95% CI)	2.87 [-3.40, 9.14]
42 Mood - Geriatric Depression Scale	1	93	Mean Difference (IV, Random, 95% CI)	-1.90 [-3.10, -0.70]
42.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
42.2 After usual care	1	93	Mean Difference (IV, Random, 95% CI)	-1.90 [-3.10, -0.70]
43 Mood - Hospital Anxiety and Depression Scale (HADS)-anxiety score	3	391	Mean Difference (IV, Random, 95% CI)	-0.28 [-0.95, 0.40]
43.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
43.2 After usual care	3	391	Mean Difference (IV, Random, 95% CI)	-0.28 [-0.95, 0.40]
44 Mood - Hospital Anxiety and Depression Scale (HADS) - depression score	3	391	Mean Difference (IV, Random, 95% CI)	0.59 [-0.08, 1.26]
44.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
44.2 After usual care	3	391	Mean Difference (IV, Random, 95% CI)	0.59 [-0.08, 1.26]

Comparison 6. Mixed training versus control - end of retention follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Case fatality	11	762	Odds Ratio (M-H, Random, 95% CI)	0.27 [0.06, 1.11]
1.1 During usual care	6	243	Odds Ratio (M-H, Random, 95% CI)	0.19 [0.02, 1.68]
1.2 After usual care	5	519	Odds Ratio (M-H, Random, 95% CI)	0.34 [0.05, 2.28]
2 Disability - Barthel Index (BI)	2	103	Mean Difference (IV, Random, 95% CI)	1.82 [-13.69, 17.33]
2.1 During usual care	1	40	Mean Difference (IV, Random, 95% CI)	9.0 [-1.29, 19.29]
2.2 After usual care	1	63	Mean Difference (IV, Random, 95% CI)	-6.90 [-21.05, 7.25]
3 Disability - Functional Independence Measure (FIM)	1	66	Mean Difference (IV, Random, 95% CI)	0.20 [-1.88, 2.28]
3.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
3.2 After usual care	1	66	Mean Difference (IV, Random, 95% CI)	0.20 [-1.88, 2.28]
4 Disability - Nottingham Extended ADL	2	106	Mean Difference (IV, Random, 95% CI)	3.10 [-5.20, 11.40]
4.1 During usual care	1	40	Mean Difference (IV, Random, 95% CI)	9.5 [-1.83, 20.83]
4.2 After usual care	1	66	Mean Difference (IV, Random, 95% CI)	0.30 [-0.93, 1.53]

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5 Disability - Rivermead Mobility Index (RMI)	2	308	Mean Difference (IV, Random, 95% CI)	0.39 [0.04, 0.73]
5.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5.2 After usual care	2	308	Mean Difference (IV, Random, 95% CI)	0.39 [0.04, 0.73]
6 Disability - Combined disability scales	4	411	Std. Mean Difference (IV, Random, 95% CI)	0.16 [-0.12, 0.44]
6.1 During usual care	1	40	Std. Mean Difference (IV, Random, 95% CI)	0.53 [-0.10, 1.16]
6.2 After usual care	3	371	Std. Mean Difference (IV, Random, 95% CI)	0.09 [-0.22, 0.40]
7 Physical fitness - gait economy, VO2 (ml/kg/metre)	1	66	Mean Difference (IV, Random, 95% CI)	-0.00 [-0.02, 0.01]
7.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
7.2 After usual care	1	66	Mean Difference (IV, Random, 95% CI)	-0.00 [-0.02, 0.01]
8 Physical fitness - muscle strength, knee flexion	1	42	Mean Difference (IV, Random, 95% CI)	4.20 [-9.36, 17.76]
8.1 During usual care	1	42	Mean Difference (IV, Random, 95% CI)	4.20 [-9.36, 17.76]
8.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
9 Physical fitness - muscle strength, knee extension	1	42	Mean Difference (IV, Random, 95% CI)	4.20 [-12.71, 21.11]
9.1 During usual care	1	42	Mean Difference (IV, Random, 95% CI)	4.20 [-12.71, 21.11]
9.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
10 Physical fitness - muscle strength, leg extensor power (affected leg) W/Kg	1	66	Mean Difference (IV, Random, 95% CI)	0.02 [-0.13, 0.17]
10.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
10.2 After usual care	1	66	Mean Difference (IV, Random, 95% CI)	0.02 [-0.13, 0.17]
11 Physical fitness - grip strength (paretic hand)	1	63	Mean Difference (IV, Random, 95% CI)	-0.04 [-0.26, 0.18]
11.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
11.2 After usual care	1	63	Mean Difference (IV, Random, 95% CI)	-0.04 [-0.26, 0.18]
12 Mobility - Functional Ambulation Categories	1	242	Mean Difference (IV, Random, 95% CI)	0.11 [0.00, 0.22]
12.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
12.2 After usual care	1	242	Mean Difference (IV, Random, 95% CI)	0.11 [0.00, 0.22]
13 Mobility - preferred gait speed (m/min)	4	443	Mean Difference (IV, Random, 95% CI)	1.60 [-5.62, 8.82]
13.1 During usual care	2	136	Mean Difference (IV, Random, 95% CI)	-1.02 [-8.64, 6.60]
13.2 After usual care	2	307	Mean Difference (IV, Random, 95% CI)	3.45 [-8.19, 15.08]
14 Mobility - gait endurance (6-MWT metres)	3	365	Mean Difference (IV, Random, 95% CI)	51.62 [25.20, 78.03]
14.1 During usual care	1	40	Mean Difference (IV, Random, 95% CI)	109.50 [17.12, 201.88]
14.2 After usual care	2	325	Mean Difference (IV, Random, 95% CI)	46.46 [18.89, 74.03]
15 Mobility - community ambulation speed (> 0.8 m/sec)	3	217	Odds Ratio (M-H, Random, 95% CI)	1.33 [0.70, 2.53]
15.1 During usual care	1	52	Odds Ratio (M-H, Random, 95% CI)	2.14 [0.56, 8.12]
15.2 After usual care	2	165	Odds Ratio (M-H, Random, 95% CI)	1.15 [0.48, 2.76]
16 Physical function - Balance - Berg Balance scale	2	102	Mean Difference (IV, Random, 95% CI)	2.22 [-7.79, 12.22]
16.1 During usual care	2	102	Mean Difference (IV, Random, 95% CI)	2.22 [-7.79, 12.22]
16.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
17 Physical function - Balance - Functional reach	1	66	Mean Difference (IV, Random, 95% CI)	2.5 [-0.97, 5.97]

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17.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
17.2 After usual care	1	66	Mean Difference (IV, Random, 95% CI)	2.5 [-0.97, 5.97]
18 Physical function - Balance - Timed balance test	1	242	Mean Difference (IV, Random, 95% CI)	0.46 [0.09, 0.83]
18.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
18.2 After usual care	1	242	Mean Difference (IV, Random, 95% CI)	0.46 [0.09, 0.83]
19 Physical function - Timed Up and Go (sec)	3	370	Mean Difference (IV, Random, 95% CI)	-1.37 [-3.86, 1.12]
19.1 During usual care	1	62	Mean Difference (IV, Random, 95% CI)	0.0 [-6.97, 6.97]
19.2 After usual care	2	308	Mean Difference (IV, Random, 95% CI)	-1.65 [-4.84, 1.53]
20 Health-related QoL - EuroQol (Health State)	1	50	Mean Difference (IV, Random, 95% CI)	0.04 [-0.12, 0.20]
20.1 During usual care	1	50	Mean Difference (IV, Random, 95% CI)	0.04 [-0.12, 0.20]
20.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
21 Health-related QoL - EuroQol (self perceived health)	1	49	Mean Difference (IV, Random, 95% CI)	3.40 [-7.31, 14.11]
21.1 During usual care	1	49	Mean Difference (IV, Random, 95% CI)	3.40 [-7.31, 14.11]
21.2 After usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
22 Health-related QoL - SF-36 physical functioning	2	146	Mean Difference (IV, Random, 95% CI)	2.46 [-7.20, 12.11]
22.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
22.2 After usual care	2	146	Mean Difference (IV, Random, 95% CI)	2.46 [-7.20, 12.11]
23 Health-related QoL - SF-36 physical role functioning	2	146	Mean Difference (IV, Random, 95% CI)	11.61 [2.38, 20.84]
23.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
23.2 After usual care	2	146	Mean Difference (IV, Random, 95% CI)	11.61 [2.38, 20.84]
24 Health-related QoL - SF-36 emotional role functioning	1	80	Mean Difference (IV, Random, 95% CI)	10.0 [-2.28, 22.28]
24.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
24.2 After usual care	1	80	Mean Difference (IV, Random, 95% CI)	10.0 [-2.28, 22.28]
25 Health-related QoL - Stroke-Adapted Sickness Impact profile	1	83	Mean Difference (IV, Random, 95% CI)	-0.70 [-6.16, 4.76]
25.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
25.2 After usual care	1	83	Mean Difference (IV, Random, 95% CI)	-0.70 [-6.16, 4.76]
26 Mood - Stroke Impact Scale emotion score	2	322	Mean Difference (IV, Random, 95% CI)	0.13 [-3.26, 3.51]
26.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
26.2 After usual care	2	322	Mean Difference (IV, Random, 95% CI)	0.13 [-3.26, 3.51]
27 Mood - Geriatric Depression Scale	1	80	Mean Difference (IV, Random, 95% CI)	-1.4 [-2.54, -0.26]
27.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
27.2 After usual care	1	80	Mean Difference (IV, Random, 95% CI)	-1.4 [-2.54, -0.26]
28 Mood - Hospital Anxiety and Depression Scale (HADS) - anxiety score	3	391	Mean Difference (IV, Random, 95% CI)	-0.11 [-0.78, 0.57]
28.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
28.2 After usual care	3	391	Mean Difference (IV, Random, 95% CI)	-0.11 [-0.78, 0.57]
29 Mood - Hospital Anxiety and Depression Scale (HADS) - depression score	3	391	Mean Difference (IV, Random, 95% CI)	0.26 [-0.43, 0.96]

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29.1 During usual care	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
29.2 After usual care	3	391	Mean Difference (IV, Random, 95% CI)	0.26 [-0.43, 0.96]

Comparison 7. Cardiorespiratory versus resistance versus mixed training

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Disability - combined disability scales	12	815	Std. Mean Difference (IV, Random, 95% CI)	0.30 [0.13, 0.46]
1.1 Cardiorespiratory training	6	289	Std. Mean Difference (IV, Random, 95% CI)	0.37 [0.10, 0.64]
1.2 Resistance training	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
1.3 Mixed training	6	526	Std. Mean Difference (IV, Random, 95% CI)	0.24 [0.00, 0.47]
2 Mobility - maximal walking speed	17		Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 Cardiorespiratory training	13	609	Mean Difference (IV, Random, 95% CI)	7.37 [3.70, 11.03]
2.2 Resistance training	4	104	Mean Difference (IV, Random, 95% CI)	1.92 [-3.50, 7.35]
2.3 Mixed training	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
3 Mobility - preferred walking speed (m/min)	20		Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 Cardiorespiratory training	8	425	Mean Difference (IV, Random, 95% CI)	4.63 [1.84, 7.43]
3.2 Resistance training	3	80	Mean Difference (IV, Random, 95% CI)	2.34 [-6.77, 11.45]
3.3 Mixed training	9	639	Mean Difference (IV, Random, 95% CI)	4.54 [0.95, 8.14]
4 Mobility - gait endurance (6-MWT metres)	19		Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 Cardiorespiratory training	10	468	Mean Difference (IV, Random, 95% CI)	26.99 [9.13, 44.84]
4.2 Resistance training	2	66	Mean Difference (IV, Random, 95% CI)	3.78 [-68.56, 76.11]
4.3 Mixed training	7	561	Mean Difference (IV, Random, 95% CI)	41.60 [25.25, 57.95]
5 Balance - Berg Balance Scale	10	496	Mean Difference (IV, Random, 95% CI)	2.32 [1.07, 3.58]
5.1 Cardiorespiratory training	5	257	Mean Difference (IV, Random, 95% CI)	3.14 [0.56, 5.73]
5.2 Resistance training	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5.3 Mixed training	5	239	Mean Difference (IV, Random, 95% CI)	1.82 [-0.31, 3.95]

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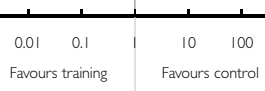
Analysis 1.1. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 1 Case fatality.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 1 Case fatality

Study or subgroup	Training n/N	Control n/N	Odds Ratio M-H,Random,95% CI	Odds Ratio M-H,Random,95% CI
1 During usual care				
Bateman 2001	0/40	0/44		0.0 [0.0, 0.0]
da Cunha 2002	0/7	0/8		0.0 [0.0, 0.0]
Eich 2004	0/25	0/25		0.0 [0.0, 0.0]
Glasser 1986	0/10	0/10		0.0 [0.0, 0.0]
Katz-Leurer 2003	0/46	0/46		0.0 [0.0, 0.0]
Kuys 2011	0/15	0/15		0.0 [0.0, 0.0]
Park 2011	0/14	0/13		0.0 [0.0, 0.0]
Pohl 2002	0/40	0/20		0.0 [0.0, 0.0]
Takami 2010 (1)	0/24	0/12		0.0 [0.0, 0.0]
Subtotal (95% CI)	**221**	**193**		**0.0 [0.0, 0.0]**
Total events: 0 (Training), 0 (Control)				
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.0$, df = 0 (P<0.00001); $I^2 = 0.0\%$				
Test for overall effect: Z = 0.0 (P < 0.00001)				
2 After usual care				
Ada 2013	0/68	0/34		0.0 [0.0, 0.0]
Aidar 2007	0/15	0/13		0.0 [0.0, 0.0]
Cuviello-Palmer 1988	0/10	0/10		0.0 [0.0, 0.0]
Globas 2012	0/20	0/18		0.0 [0.0, 0.0]
Ivey 2010	0/39	0/41		0.0 [0.0, 0.0]
Ivey 2011	0/19	0/19		0.0 [0.0, 0.0]
Kang 2012	0/11	0/10		0.0 [0.0, 0.0]
Lennon 2008	0/24	0/24		0.0 [0.0, 0.0]
Moore 2010	0/10	0/10		0.0 [0.0, 0.0]
Mudge 2009	0/31	0/27		0.0 [0.0, 0.0]
Potempa 1995	0/19	0/23		0.0 [0.0, 0.0]



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Study or subgroup	Training n/N	Control n/N	Odds Ratio M-H,Random,95% CI	Odds Ratio M-H,Random,95% CI
Salbach 2004	0/44	0/47		0.0 [0.0, 0.0]
Smith 2008	0/10	0/10		0.0 [0.0, 0.0]
Subtotal (95% CI)	**320**	**286**		**0.0 [0.0, 0.0]**
Total events: 0 (Training), 0 (Control)				
Heterogeneity: Tau^2 = 0.0; Chi^2 = 0.0, df = 0 (P<0.00001); I^2 =0.0%				
Test for overall effect: Z = 0.0 (P < 0.00001)				
Total (95% CI)	**541**	**479**		**0.0 [0.0, 0.0]**
Total events: 0 (Training), 0 (Control)				
Heterogeneity: Tau^2 = ; Chi^2 = 0.0, df = 0 (P<0.00001); I^2 =0.0%				
Test for overall effect: Z = 0.0 (P < 0.00001)				
Test for subgroup differences: Chi^2 = 0.0, df = -1 (P = 0.0), I^2 =0.0%				

(1) Two intervention groups

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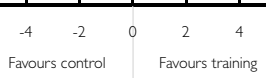
Analysis 1.2. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 2 Disability - Functional Independence Measure.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 2 Disability - Functional Independence Measure

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Bateman 2001	23	104.74 (17.7)	29	100.38 (18.92)		31.9 %	0.23 [-0.32, 0.78]
Subtotal (95% CI)	**23**		**29**			**31.9 %**	**0.23 [-0.32, 0.78]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.83 (P = 0.40)							
2 After usual care							
Cuviello-Palmer 1988	10	44.79 (8.77)	10	47.18 (9.88)		12.4 %	-0.25 [-1.13, 0.64]
Katz-Leurer 2003	46	105.8 (12.5)	44	101.4 (16)		55.7 %	0.30 [-0.11, 0.72]
Subtotal (95% CI)	**56**		**54**			**68.1 %**	**0.17 [-0.29, 0.63]**
Heterogeneity: $Tau^2 = 0.03$; $Chi^2 = 1.22$, df = 1 (P = 0.27); $I^2 = 18\%$							
Test for overall effect: Z = 0.73 (P = 0.46)							
Total (95% CI)	**79**		**83**			**100.0 %**	**0.21 [-0.10, 0.52]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 1.23$, df = 2 (P = 0.54); $I^2 = 0.0\%$							
Test for overall effect: Z = 1.35 (P = 0.18)							
Test for subgroup differences: $Chi^2 = 0.03$, df = 1 (P = 0.87), $I^2 = 0.0\%$							



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Analysis 1.3. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 3 Disability - Rivermead Mobility Index (scale 0 to 15).

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 3 Disability - Rivermead Mobility Index (scale 0 to 15)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bateman 2001	36	10.06 (3.6)	41	9.9 (3.65)		32.2 %	0.16 [-1.46, 1.78]
Takami 2010 (1)	10	11.9 (2.1)	6	8.4 (2.9)		18.1 %	3.50 [0.84, 6.16]
Takami 2010 (2)	11	9.6 (3.4)	6	8.4 (2.9)		14.7 %	1.20 [-1.87, 4.27]
Subtotal (95% CI)	**57**		**53**			**65.0 %**	**1.43 [-0.62, 3.49]**
Heterogeneity: $Tau^2 = 1.81$; $Chi^2 = 4.42$, df = 2 (P = 0.11); $I^2 = 55\%$							
Test for overall effect: Z = 1.37 (P = 0.17)							
2 After usual care							
Globas 2012	18	13.3 (1.7)	18	11.3 (2.7)		35.0 %	2.00 [0.53, 3.47]
Subtotal (95% CI)	**18**		**18**			**35.0 %**	**2.00 [0.53, 3.47]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.66 (P = 0.0078)							
Total (95% CI)	**75**		**71**			**100.0 %**	**1.56 [0.20, 2.92]**
Heterogeneity: $Tau^2 = 0.81$; $Chi^2 = 5.27$, df = 3 (P = 0.15); $I^2 = 43\%$							
Test for overall effect: Z = 2.25 (P = 0.024)							
Test for subgroup differences: $Chi^2 = 0.19$, df = 1 (P = 0.66), $I^2 = 0.0\%$							

(1) Takami 2010 backward walking group with 50% of the control participants

(2) Takami 2010 forward walking group with 50% of the control participants

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Analysis 1.4. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 4 Disability - Physical Activity and Disability Scale.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 4 Disability - Physical Activity and Disability Scale

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mudge 2009	31	77.8 (55.7)	27	60.9 (67.2)		100.0 %	16.90 [-15.15, 48.95]
Subtotal (95% CI)	**31**		**27**			**100.0 %**	**16.90 [-15.15, 48.95]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.03 (P = 0.30)							
Total (95% CI)	**31**		**27**			**100.0 %**	**16.90 [-15.15, 48.95]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.03 (P = 0.30)							
Test for subgroup differences: Not applicable							

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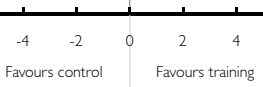
Analysis 1.5. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 5 Disability - combined disability scales.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 5 Disability - combined disability scales

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Bateman 2001	23	104.74 (17.7)	29	100.38 (18.92)		18.6 %	0.23 [-0.32, 0.78]
Takami 2010 (1)	11	9.6 (3.4)	6	8.4 (2.9)		6.6 %	0.35 [-0.65, 1.36]
Takami 2010 (2)	10	11.9 (2.1)	6	8.4 (2.9)		5.1 %	1.37 [0.22, 2.52]
Subtotal (95% CI)	**44**		**41**			**30.4 %**	**0.51 [-0.10, 1.12]**
Heterogeneity: $Tau^2 = 0.11$; $Chi^2 = 3.08$, df = 2 (P = 0.21); $I^2 = 35\%$							
Test for overall effect: Z = 1.63 (P = 0.10)							
2 After usual care							
Cuviello-Palmer 1988	10	44.79 (8.77)	10	47.18 (9.88)		8.4 %	-0.25 [-1.13, 0.64]
Globas 2012	18	13.3 (1.7)	18	11.3 (2.7)		13.0 %	0.87 [0.18, 1.55]
Katz-Leurer 2003	46	105.8 (12.5)	44	101.4 (16)		27.9 %	0.30 [-0.11, 0.72]
Mudge 2009	31	77.8 (55.7)	27	60.9 (67.2)		20.4 %	0.27 [-0.25, 0.79]
Subtotal (95% CI)	**105**		**99**			**69.6 %**	**0.33 [0.00, 0.67]**
Heterogeneity: $Tau^2 = 0.03$; $Chi^2 = 4.05$, df = 3 (P = 0.26); $I^2 = 26\%$							
Test for overall effect: Z = 1.94 (P = 0.052)							
Total (95% CI)	**149**		**140**			**100.0 %**	**0.37 [0.10, 0.64]**
Heterogeneity: $Tau^2 = 0.02$; $Chi^2 = 7.25$, df = 6 (P = 0.30); $I^2 = 17\%$							
Test for overall effect: Z = 2.69 (P = 0.0072)							
Test for subgroup differences: $Chi^2 = 0.24$, df = 1 (P = 0.62), $I^2 = 0.0\%$							



(1) Takami 2010 backward walking group with 50% of the control participants

(2) Takami 2010 forward walking group with 50% of the control participants

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Analysis 1.6. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 6 Risk factors - blood pressure, systolic.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 6 Risk factors - blood pressure, systolic

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
da Cunha 2002	6	191.33 (9.93)	6	165 (28.81)		10.1 %	26.33 [1.95, 50.71]
Subtotal (95% CI)	**6**		**6**			**10.1 %**	**26.33 [1.95, 50.71]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.12 (P = 0.034)							
2 After usual care							
Katz-Leurer 2003	46	130.3 (15.7)	44	136.2 (19.5)		34.6 %	-5.90 [-13.23, 1.43]
Lennon 2008	23	136 (13.3)	23	133.5 (16.7)		31.4 %	2.50 [-6.22, 11.22]
Potempa 1995	19	127.3 (18.31)	23	131.5 (22.54)		23.9 %	-4.20 [-16.55, 8.15]
Subtotal (95% CI)	**88**		**90**			**89.9 %**	**-2.69 [-8.03, 2.66]**
Heterogeneity: Tau^2 = 1.68; Chi^2 = 2.15, df = 2 (P = 0.34); I^2 =7%							
Test for overall effect: Z = 0.99 (P = 0.32)							
Total (95% CI)	**94**		**96**			**100.0 %**	**0.40 [-8.38, 9.18]**
Heterogeneity: Tau^2 = 44.09; Chi^2 = 7.38, df = 3 (P = 0.06); I^2 =59%							
Test for overall effect: Z = 0.09 (P = 0.93)							
Test for subgroup differences: Chi^2 = 5.19, df = 1 (P = 0.02), I^2 =81%							

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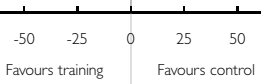
Analysis 1.7. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 7 Risk factors - blood pressure, diastolic.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 7 Risk factors - blood pressure, diastolic

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
da Cunha 2002	6	95.33 (9.69)	6	94.33 (10.54)		5.3 %	1.00 [-10.46, 12.46]
Subtotal (95% CI)	**6**		**6**			**5.3 %**	**1.00 [-10.46, 12.46]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.17 (P = 0.86)							
2 After usual care							
Katz-Leurer 2003	46	79 (9.7)	44	80.8 (10.2)		41.1 %	-1.80 [-5.92, 2.32]
Lennon 2008	23	81.4 (8.4)	23	82 (9)		27.5 %	-0.60 [-5.63, 4.43]
Potempa 1995	19	78.4 (9.15)	23	76.4 (7.67)		26.0 %	2.00 [-3.17, 7.17]
Subtotal (95% CI)	**88**		**90**			**94.7 %**	**-0.41 [-3.12, 2.31]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 1.28$, df = 2 (P = 0.53); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.29 (P = 0.77)							
Total (95% CI)	**94**		**96**			**100.0 %**	**-0.33 [-2.97, 2.31]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 1.33$, df = 3 (P = 0.72); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.25 (P = 0.81)							
Test for subgroup differences: $Chi^2 = 0.05$, df = 1 (P = 0.81), $I^2 = 0.0\%$							



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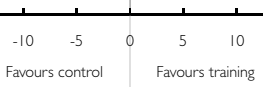
Analysis 1.8. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 8 Physical fitness - peak VO2 (ml/kg/min).

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 8 Physical fitness - peak VO_2 (ml/kg/min)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
da Cunha 2002	6	11.55 (2.76)	6	8.12 (2.3)		16.2 %	3.43 [0.56, 6.30]
Subtotal (95% CI)	**6**		**6**			**16.2 %**	**3.43 [0.56, 6.30]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.34 (P = 0.019)							
2 After usual care							
Potempa 1995	19	18.8 (4.79)	23	15.2 (4.32)		16.9 %	3.60 [0.82, 6.38]
Lennon 2008	23	12 (2.2)	23	11.1 (1.9)		41.9 %	0.90 [-0.29, 2.09]
Moore 2010	10	18 (5.4)	10	16 (7.1)		5.4 %	2.00 [-3.53, 7.53]
Ivey 2010	29	16.6 (5.64)	24	12.8 (24)		1.8 %	3.80 [-6.02, 13.62]
Ivey 2011	19	17.4 (6.99)	19	12.8 (4.5)		10.7 %	4.60 [0.86, 8.34]
Globas 2012	18	24.4 (6.6)	18	20.9 (7.8)		7.2 %	3.50 [-1.22, 8.22]
Subtotal (95% CI)	**118**		**117**			**83.8 %**	**2.32 [0.81, 3.84]**
Heterogeneity: Tau^2 = 0.88; Chi^2 = 6.59, df = 5 (P = 0.25); I^2 =24%							
Test for overall effect: Z = 3.00 (P = 0.0027)							
Total (95% CI)	**124**		**123**			**100.0 %**	**2.46 [1.12, 3.80]**
Heterogeneity: Tau^2 = 0.75; Chi^2 = 7.83, df = 6 (P = 0.25); I^2 =23%							
Test for overall effect: Z = 3.59 (P = 0.00033)							
Test for subgroup differences: Chi^2 = 0.44, df = 1 (P = 0.50), I^2 =0.0%							



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Analysis 1.9. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 9 Physical fitness - gait economy, VO2 (ml/kg/metre).

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 9 Physical fitness - gait economy, VO_2 (ml/kg/metre)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Moore 2010	10	0.291 (0.228)	10	0.37 (0.234)		100.0 %	-0.08 [-0.28, 0.12]
Subtotal (95% CI)	**10**		**10**			**100.0 %**	**-0.08 [-0.28, 0.12]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.77 (P = 0.44)							
Total (95% CI)	**10**		**10**			**100.0 %**	**-0.08 [-0.28, 0.12]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.77 (P = 0.44)							
Test for subgroup differences: Not applicable							

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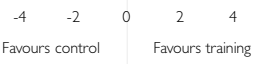
Analysis 1.10. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 10 Physical fitness - maximum cycling work rate (Watts).

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 10 Physical fitness - maximum cycling work rate (Watts)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Bateman 2001	36	4.22 (0.72)	41	4.13 (0.59)		32.7 %	0.14 [-0.31, 0.58]
da Cunha 2002	6	62.5 (26.22)	6	41.67 (12.91)		9.7 %	0.93 [-0.29, 2.15]
Subtotal (95% CI)	**42**		**47**			**42.4 %**	**0.32 [-0.34, 0.98]**
Heterogeneity: $Tau^2 = 0.10$; $Chi^2 = 1.44$, df = 1 (P = 0.23); $I^2 = 30\%$							
Test for overall effect: Z = 0.96 (P = 0.34)							
2 After usual care							
Katz-Leurer 2003	46	25.2 (14.9)	44	12.9 (12.6)		33.5 %	0.88 [0.45, 1.32]
Potempa 1995	19	94.2 (46.64)	23	66.1 (30.69)		24.1 %	0.71 [0.08, 1.34]
Subtotal (95% CI)	**65**		**67**			**57.6 %**	**0.83 [0.47, 1.18]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.19$, df = 1 (P = 0.66); $I^2 = 0.0\%$							
Test for overall effect: Z = 4.54 (P < 0.00001)							
Total (95% CI)	**107**		**114**			**100.0 %**	**0.60 [0.18, 1.02]**
Heterogeneity: $Tau^2 = 0.09$; $Chi^2 = 6.12$, df = 3 (P = 0.11); $I^2 = 51\%$							
Test for overall effect: Z = 2.80 (P = 0.0052)							
Test for subgroup differences: $Chi^2 = 1.74$, df = 1 (P = 0.19), $I^2 = 43\%$							



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Analysis 1.11. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 11 Mobility - functional ambulation categories.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 11 Mobility - functional ambulation categories

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
da Cunha 2002	6	2.33 (1.37)	7	1.86 (1.77)		3.6 %	0.47 [-1.24, 2.18]
Pohl 2002 (1)	20	4.6 (0.6)	10	4.3 (0.7)		40.7 %	0.30 [-0.21, 0.81]
Pohl 2002 (2)	20	5 (0.01)	10	4.3 (0.7)		55.7 %	0.70 [0.27, 1.13]
Subtotal (95% CI)	**46**		**27**			**100.0 %**	**0.53 [0.21, 0.85]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 1.38$, df = 2 (P = 0.50); $I^2 = 0.0\%$							
Test for overall effect: Z = 3.20 (P = 0.0014)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**46**		**27**			**100.0 %**	**0.53 [0.21, 0.85]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 1.38$, df = 2 (P = 0.50); $I^2 = 0.0\%$							
Test for overall effect: Z = 3.20 (P = 0.0014)							
Test for subgroup differences: Not applicable							

(1) Pohl 2002 limited progressive treadmill training group (LTT) with 50% of the control participants

(2) Pohl 2002 speed-dependent treadmill training group (STT) with 50% of the control participants

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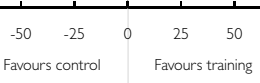
Analysis 1.12. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 12 Mobility - maximal gait speed (m/min over 5 to 10 metres).

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 12 Mobility - maximal gait speed (m/min over 5 to 10 metres)

Study or subgroup	Favours control N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bateman 2001	36	16 (11.06)	37	16.22 (19.49)		15.9 %	-0.22 [-7.47, 7.03]
da Cunha 2002	6	35.4 (17.4)	7	16.2 (13.8)		4.1 %	19.20 [1.93, 36.47]
Pohl 2002 (1)	20	73.2 (44.4)	10	58.2 (38.4)		1.4 %	15.00 [-15.74, 45.74]
Pohl 2002 (2)	20	97.8 (48)	10	58.2 (38.4)		1.3 %	39.60 [7.84, 71.36]
Eich 2004	25	42.6 (18)	25	36 (13.2)		12.4 %	6.60 [-2.15, 15.35]
Takami 2010 (3)	10	91.5 (23.3)	6	66.8 (29.4)		1.7 %	24.70 [-2.90, 52.30]
Takami 2010 (4)	11	84.8 (30.2)	6	66.8 (29.4)		1.5 %	18.00 [-11.53, 47.53]
Kuys 2011	13	51.6 (25.8)	15	51.6 (28.2)		3.1 %	0.0 [-20.01, 20.01]
Park 2011	13	43.2 (14.1)	12	30 (13.8)		8.9 %	13.20 [2.26, 24.14]
Kang 2012	10	30 (12)	10	30 (6)		13.3 %	0.0 [-8.32, 8.32]
Subtotal (95% CI)	**164**		**138**			**63.5 %**	**8.16 [2.07, 14.25]**
Heterogeneity: Tau^2 = 35.13; Chi^2 = 16.08, df = 9 (P = 0.07); I^2 =44%							
Test for overall effect: Z = 2.63 (P = 0.0086)							
2 After usual care							
Salbach 2004	44	59.4 (33.6)	47	48 (29.4)		6.7 %	11.40 [-1.61, 24.41]
Moore 2010	10	54.6 (26.4)	10	46.2 (19.2)		3.0 %	8.40 [-11.83, 28.63]
Mudge 2009	31	47.4 (16.8)	27	37.8 (15)		13.6 %	9.60 [1.42, 17.78]
Globas 2012	18	61.2 (22.8)	18	52.2 (37.2)		3.1 %	9.00 [-11.16, 29.16]
Ada 2013 (5)	34	53.4 (30)	17	43.8 (24.6)		5.0 %	9.60 [-5.84, 25.04]
Ada 2013 (6)	34	48 (28.2)	17	45 (24.6)		5.2 %	3.00 [-12.05, 18.05]
Subtotal (95% CI)	**171**		**136**			**36.5 %**	**8.93 [3.54, 14.33]**
Heterogeneity: Tau^2 = 0.0; Chi^2 = 0.77, df = 5 (P = 0.98); I^2 =0.0%							
Test for overall effect: Z = 3.25 (P = 0.0012)							
Total (95% CI)	**335**		**274**			**100.0 %**	**7.37 [3.70, 11.03]**
Heterogeneity: Tau^2 = 8.33; Chi^2 = 17.82, df = 15 (P = 0.27); I^2 =16%							
Test for overall effect: Z = 3.94 (P = 0.000082)							
Test for subgroup differences: Chi^2 = 0.03, df = 1 (P = 0.85), I^2 =0.0%							



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(1) Pohl 2002 limited progression treadmill training group (STT) with 50% of the control participants

(2) Pohl 2002 speed-dependent treadmill training group (STT) with 50% of the control participants

(3) Takami 2010 backward walking group with 50% of the control participants

(4) Takami 2010 forward walking group with 50% of the control participants

(5) Ada 2013 2 month training group with 50% of the control participants

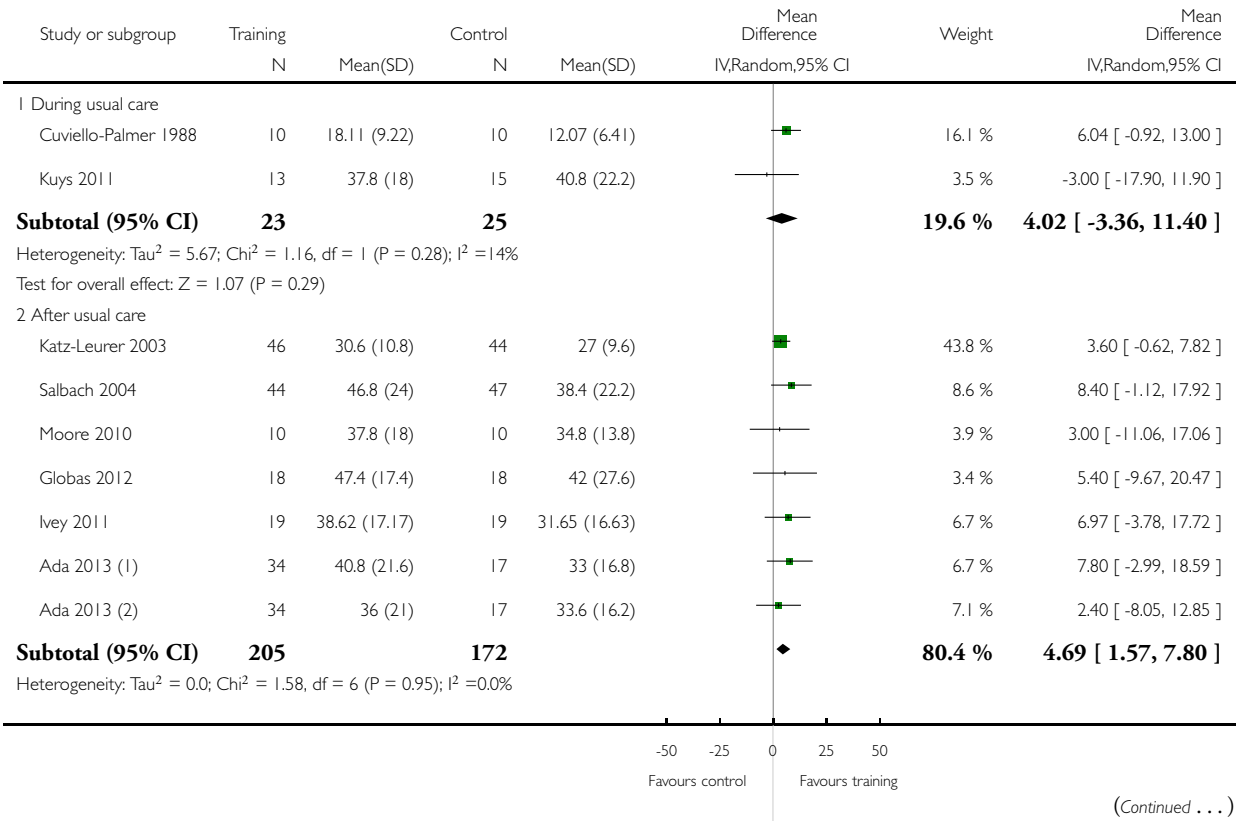
(6) Ada 2013 4 month training group with 50% of the control participants

Analysis 1.13. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 13 Mobility - preferred gait speed (m/min).

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 13 Mobility - preferred gait speed (m/min)



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Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
Test for overall effect: Z = 2.95 (P = 0.0032)							
Total (95% CI)	**228**		**197**			**100.0 %**	**4.63 [1.84, 7.43]**
Heterogeneity: Tau² = 0.0; Chi² = 2.75, df = 8 (P = 0.95); I² =0.0%							
Test for overall effect: Z = 3.25 (P = 0.0011)							
Test for subgroup differences: Chi² = 0.03, df = 1 (P = 0.87), I² =0.0%							

(1) Ada 2013 2 month training group with 50% of the control participants

(2) Ada 2013 4 month training group with 50% of the control participants

Analysis 1.14. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 14 Mobility - gait endurance (6-MWT metres).

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 14 Mobility - gait endurance (6-MWT metres)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Eich 2004	25	198.8 (81.1)	25	164.4 (69.3)		14.6 %	34.40 [-7.42, 76.22]
Kang 2012	10	242.3 (26)	10	240.9 (22.4)		35.8 %	1.40 [-19.87, 22.67]
Kuys 2011	13	284 (139)	15	279 (136)		2.9 %	5.00 [-97.21, 107.21]
Park 2011	13	233.23 (77.59)	12	175.58 (88.75)		6.7 %	57.65 [-7.93, 123.23]
Subtotal (95% CI)	**61**		**62**			**60.1 %**	**17.20 [-7.76, 42.17]**
Heterogeneity: Tau² = 172.15; Chi² = 3.94, df = 3 (P = 0.27); I² =24%							
Test for overall effect: Z = 1.35 (P = 0.18)							
2 After usual care							
Ada 2013 (1)	34	289 (131)	17	263 (115)		5.9 %	26.00 [-44.20, 96.20]
Ada 2013 (2)	34	259 (145)	17	258 (116)		5.4 %	1.00 [-72.59, 74.59]

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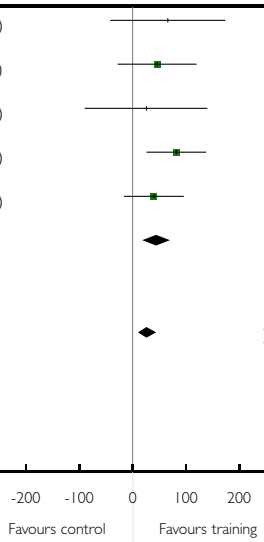
Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
Globas 2012	18	332.1 (138)	18	265.9 (189)		2.6 %	66.20 [-41.91, 174.31]
Ivey 2011	19	242.62 (125.57)	19	197.21 (106.68)		5.4 %	45.41 [-28.68, 119.50]
Moore 2010	10	226 (130)	10	201 (134)		2.3 %	25.00 [-90.71, 140.71]
Mudge 2009	31	282 (117)	27	200 (99)		9.0 %	82.00 [26.41, 137.59]
Salbach 2004	44	249 (136)	47	209 (132)		9.2 %	40.00 [-15.13, 95.13]
Subtotal (95% CI)	**190**		**155**			**39.9 %**	**44.09 [17.20, 70.98]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 3.65$, df = 6 (P = 0.72); $I^2 = 0.0\%$							
Test for overall effect: Z = 3.21 (P = 0.0013)							
Total (95% CI)	**251**		**217**			**100.0 %**	**26.99 [9.13, 44.84]**
Heterogeneity: $Tau^2 = 113.82$; $Chi^2 = 11.42$, df = 10 (P = 0.33); $I^2 = 12\%$							
Test for overall effect: Z = 2.96 (P = 0.0031)							
Test for subgroup differences: $Chi^2 = 2.06$, df = 1 (P = 0.15), $I^2 = 52\%$							



(1) Ada 2013 2 month training group with 50% of the control participants

(2) Ada 2013 4 month training group with 50% of the control participants

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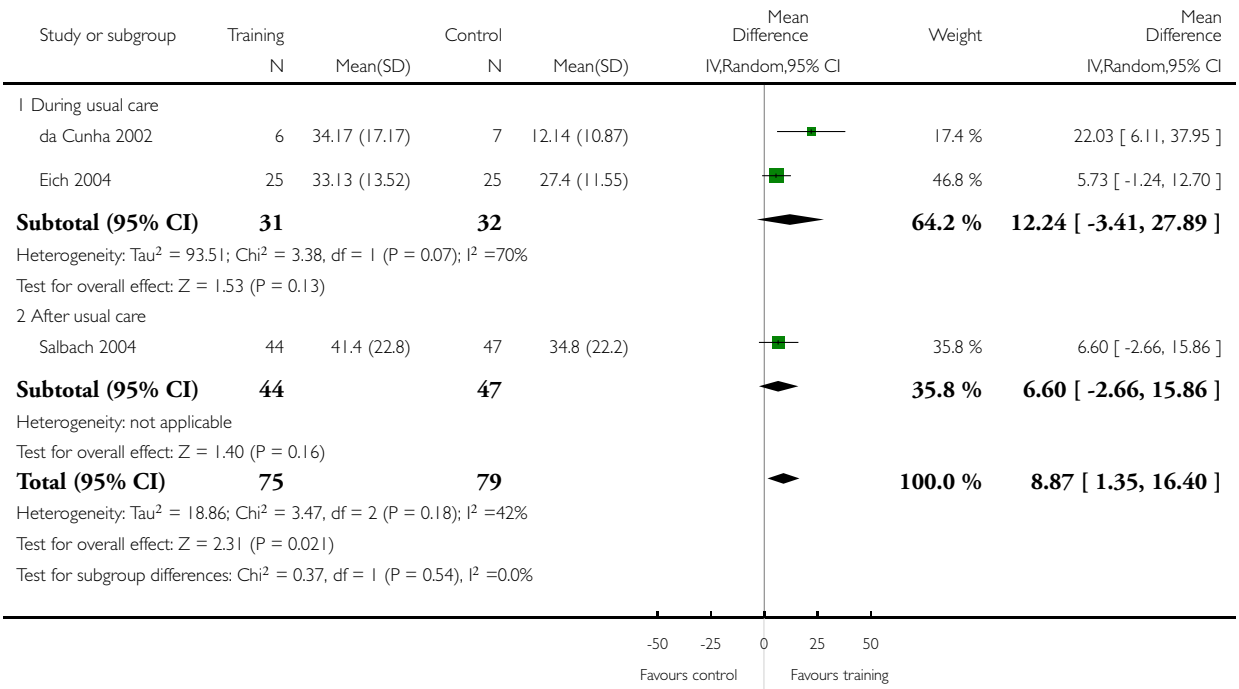
Analysis 1.15. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 15 Mobility - gait endurance (m/min).

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 15 Mobility - gait endurance (m/min)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
da Cunha 2002	6	34.17 (17.17)	7	12.14 (10.87)		17.4 %	22.03 [6.11, 37.95]
Eich 2004	25	33.13 (13.52)	25	27.4 (11.55)		46.8 %	5.73 [-1.24, 12.70]
Subtotal (95% CI)	**31**		**32**			**64.2 %**	**12.24 [-3.41, 27.89]**
Heterogeneity: Tau^2 = 93.51; Chi^2 = 3.38, df = 1 (P = 0.07); I^2 =70%							
Test for overall effect: Z = 1.53 (P = 0.13)							
2 After usual care							
Salbach 2004	44	41.4 (22.8)	47	34.8 (22.2)		35.8 %	6.60 [-2.66, 15.86]
Subtotal (95% CI)	**44**		**47**			**35.8 %**	**6.60 [-2.66, 15.86]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.40 (P = 0.16)							
Total (95% CI)	**75**		**79**			**100.0 %**	**8.87 [1.35, 16.40]**
Heterogeneity: Tau^2 = 18.86; Chi^2 = 3.47, df = 2 (P = 0.18); I^2 =42%							
Test for overall effect: Z = 2.31 (P = 0.021)							
Test for subgroup differences: Chi^2 = 0.37, df = 1 (P = 0.54), I^2 =0.0%							



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Analysis 1.16. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 16 Mobility - 6 metre walking time (sec).

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 16 Mobility - 6 metre walking time (sec)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Glasser 1986	10	9.98 (3.03)	10	13.3 (7.82)		100.0 %	-3.32 [-8.52, 1.88]
Subtotal (95% CI)	**10**		**10**			**100.0 %**	**-3.32 [-8.52, 1.88]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.25 (P = 0.21)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**10**		**10**			**100.0 %**	**-3.32 [-8.52, 1.88]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.25 (P = 0.21)							
Test for subgroup differences: Not applicable							

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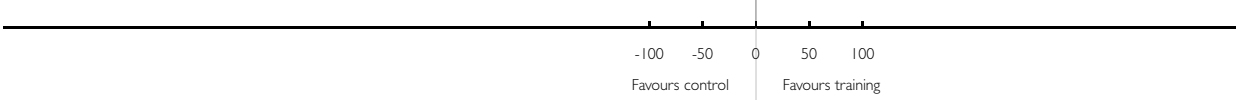
Analysis 1.17. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 17 Mobility - Stroke Impact Scale (mobility domain).

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 17 Mobility - Stroke Impact Scale (mobility domain)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Smith 2008	10	64.8 (16.4)	10	68 (15.4)		100.0 %	-3.20 [-17.14, 10.74]
Subtotal (95% CI)	**10**		**10**			**100.0 %**	**-3.20 [-17.14, 10.74]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.45 (P = 0.65)							
Total (95% CI)	**10**		**10**			**100.0 %**	**-3.20 [-17.14, 10.74]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.45 (P = 0.65)							
Test for subgroup differences: Not applicable							



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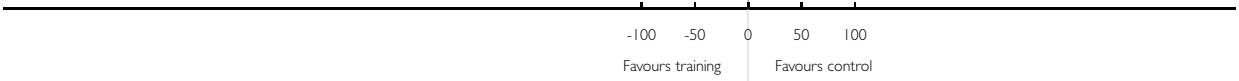
Analysis 1.18. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 18 Mobility - Community walk test (min).

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 18 Mobility - Community walk test (min)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Park 2011	13	29.62 (27.21)	12	40.3 (34.61)		100.0 %	-10.68 [-35.22, 13.86]
Subtotal (95% CI)	**13**		**12**			**100.0 %**	**-10.68 [-35.22, 13.86]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.85 (P = 0.39)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**13**		**12**			**100.0 %**	**-10.68 [-35.22, 13.86]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.85 (P = 0.39)							
Test for subgroup differences: Not applicable							



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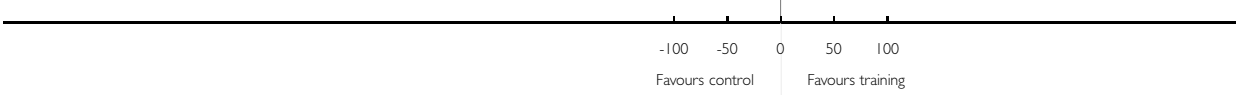
Analysis 1.19. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 19 Mobility - Walking ability questionnaire (score 0 to 76).

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 19 Mobility - Walking ability questionnaire (score 0 to 76)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Park 2011	13	52.54 (10.47)	12	51.5 (9.31)		100.0 %	1.04 [-6.71, 8.79]
Subtotal (95% CI)	**13**		**12**			**100.0 %**	**1.04 [-6.71, 8.79]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.26 (P = 0.79)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**13**		**12**			**100.0 %**	**1.04 [-6.71, 8.79]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.26 (P = 0.79)							
Test for subgroup differences: Not applicable							



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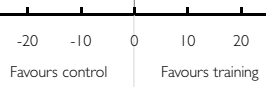
Analysis 1.20. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 20 Physical function - Berg Balance Scale (score 0 to 56).

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 20 Physical function - Berg Balance Scale (score 0 to 56)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bateman 2001	35	45 (11.9)	42	45.3 (11.3)		24.6 %	-0.30 [-5.52, 4.92]
Takami 2010 (1)	10	54.8 (2.4)	6	48.1 (9.2)		11.9 %	6.70 [-0.81, 14.21]
Takami 2010 (2)	11	50.6 (5.6)	6	48.1 (9.2)		10.3 %	2.50 [-5.57, 10.57]
Subtotal (95% CI)	**56**		**54**			**46.7 %**	**2.22 [-1.86, 6.31]**
Heterogeneity: $Tau^2 = 1.61$; $Chi^2 = 2.26$, df = 2 (P = 0.32); $I^2 = 12\%$							
Test for overall effect: Z = 1.07 (P = 0.29)							
2 After usual care							
Salbach 2004	44	44 (11)	47	41 (13)		27.4 %	3.00 [-1.94, 7.94]
Moore 2010	10	48 (10)	10	46 (10)		8.7 %	2.00 [-6.77, 10.77]
Globas 2012	18	51.1 (6.4)	18	44.3 (11.9)		17.2 %	6.80 [0.56, 13.04]
Subtotal (95% CI)	**72**		**75**			**53.3 %**	**4.06 [0.52, 7.60]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 1.13$, df = 2 (P = 0.57); $I^2 = 0.0\%$							
Test for overall effect: Z = 2.25 (P = 0.025)							
Total (95% CI)	**128**		**129**			**100.0 %**	**3.14 [0.56, 5.73]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 3.95$, df = 5 (P = 0.56); $I^2 = 0.0\%$							
Test for overall effect: Z = 2.38 (P = 0.017)							
Test for subgroup differences: $Chi^2 = 0.44$, df = 1 (P = 0.50), $I^2 = 0.0\%$							



(1) Takami 2010 backward walking group and 50% of control group

(2) Takami 2010 forward walking group and 50% of control group

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Analysis 1.21. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 21 Physical function - Timed Up and Go (sec).

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 21 Physical function - Timed Up and Go (sec)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Kang 2012	10	17.9 (4.5)	10	20 (5)		77.4 %	-2.10 [-6.27, 2.07]
Subtotal (95% CI)	**10**		**10**			**77.4 %**	**-2.10 [-6.27, 2.07]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.99 (P = 0.32)							
2 After usual care							
Moore 2010	10	20 (12)	10	24 (16)		8.8 %	-4.00 [-16.40, 8.40]
Salbach 2004	44	23.2 (20.6)	47	27.1 (27.1)		13.9 %	-3.90 [-13.75, 5.95]
Subtotal (95% CI)	**54**		**57**			**22.6 %**	**-3.94 [-11.65, 3.77]**
Heterogeneity: Tau^2 = 0.0; Chi^2 = 0.00, df = 1 (P = 0.99); I^2 =0.0%							
Test for overall effect: Z = 1.00 (P = 0.32)							
Total (95% CI)	**64**		**67**			**100.0 %**	**-2.52 [-6.18, 1.15]**
Heterogeneity: Tau^2 = 0.0; Chi^2 = 0.17, df = 2 (P = 0.92); I^2 =0.0%							
Test for overall effect: Z = 1.34 (P = 0.18)							
Test for subgroup differences: Chi^2 = 0.17, df = 1 (P = 0.68), I^2 =0.0%							

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Analysis 1.22. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 22 Physical function - Functional Reach.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 22 Physical function - Functional Reach

Study or subgroup	Training N	Mean(SD)[cm]	Control N	Mean(SD)[cm]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Kang 2012	10	30.4 (2.5)	10	28.2 (2.3)		100.0 %	2.20 [0.09, 4.31]
Subtotal (95% CI)	**10**		**10**			**100.0 %**	**2.20 [0.09, 4.31]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.05 (P = 0.041)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**10**		**10**			**100.0 %**	**2.20 [0.09, 4.31]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.05 (P = 0.041)							
Test for subgroup differences: Not applicable							

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Analysis 1.23. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 23 Mobility - Activities-Specific Balance Confidence scale (scores 0 to 100).

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 23 Mobility - Activities-Specific Balance Confidence scale (scores 0 to 100)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Park 2011	13	54.1 (12.89)	12	43.44 (24.08)		100.0 %	10.66 [-4.66, 25.98]
Subtotal (95% CI)	**13**		**12**			**100.0 %**	**10.66 [-4.66, 25.98]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.36 (P = 0.17)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**13**		**12**			**100.0 %**	**10.66 [-4.66, 25.98]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.36 (P = 0.17)							
Test for subgroup differences: Not applicable							

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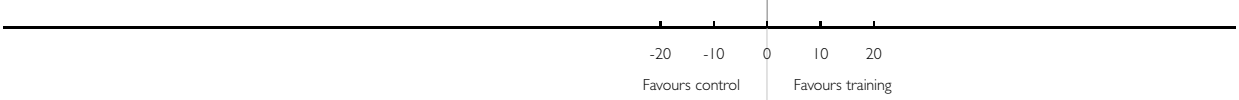
Analysis 1.24. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 24 Health-related QoL - SF-36 emotional role functioning.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 24 Health-related QoL - SF-36 emotional role functioning

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Aidar 2007	15	69.2 (3.5)	13	58.2 (8.3)		100.0 %	11.00 [6.15, 15.85]
Subtotal (95% CI)	**15**		**13**			**100.0 %**	**11.00 [6.15, 15.85]**
Heterogeneity: not applicable							
Test for overall effect: Z = 4.45 (P < 0.00001)							
Total (95% CI)	**15**		**13**			**100.0 %**	**11.00 [6.15, 15.85]**
Heterogeneity: not applicable							
Test for overall effect: Z = 4.45 (P < 0.00001)							
Test for subgroup differences: Not applicable							



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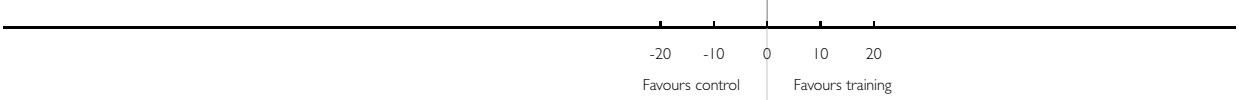
Analysis 1.25. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 25 Health-related QoL - SF-36 physical functioning.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 25 Health-related QoL - SF-36 physical functioning

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Aidar 2007	15	69.9 (3.2)	13	59.3 (6.9)		100.0 %	10.60 [6.51, 14.69]
Subtotal (95% CI)	**15**		**13**			**100.0 %**	**10.60 [6.51, 14.69]**
Heterogeneity: not applicable							
Test for overall effect: Z = 5.09 (P < 0.00001)							
Total (95% CI)	**15**		**13**			**100.0 %**	**10.60 [6.51, 14.69]**
Heterogeneity: not applicable							
Test for overall effect: Z = 5.09 (P < 0.00001)							
Test for subgroup differences: Not applicable							



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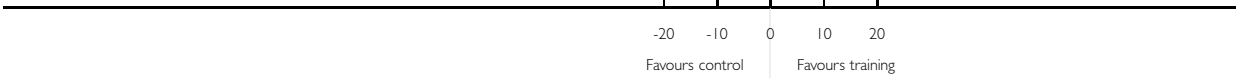
Analysis 1.26. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 26 Health-related QoL - SF-12 Mental.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 26 Health-related QoL - SF-12 Mental

Study or subgroup	Training N	Mean(SD)[0 to 100]	Control N	Mean(SD)[0 to 100]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Globas 2012	18	58 (6.9)	18	48.7 (8.3)		100.0 %	9.30 [4.31, 14.29]
Subtotal (95% CI)	**18**		**18**			**100.0 %**	**9.30 [4.31, 14.29]**
Heterogeneity: not applicable							
Test for overall effect: Z = 3.66 (P = 0.00026)							
Total (95% CI)	**18**		**18**			**100.0 %**	**9.30 [4.31, 14.29]**
Heterogeneity: not applicable							
Test for overall effect: Z = 3.66 (P = 0.00026)							
Test for subgroup differences: Not applicable							



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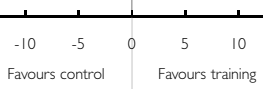
Analysis 1.27. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 27 Health-related QoL - SF-12 physical.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 27 Health-related QoL - SF-12 physical

Study or subgroup	Training N	Mean(SD)[0 to 100]	Control N	Mean(SD)[0 to 100]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Globas 2012	18	46.5 (5)	18	43.7 (8.3)		100.0 %	2.80 [-1.68, 7.28]
Subtotal (95% CI)	**18**		**18**			**100.0 %**	**2.80 [-1.68, 7.28]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.23 (P = 0.22)							
Total (95% CI)	**18**		**18**			**100.0 %**	**2.80 [-1.68, 7.28]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.23 (P = 0.22)							
Test for subgroup differences: Not applicable							



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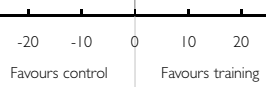
Analysis 1.28. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 28 Health-related QoL - EuroQol EQ-5D.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 28 Health-related QoL - EuroQol EQ-5D

Study or subgroup	Training N	Mean(SD)[0 to 100]	Control N	Mean(SD)[0 to 100]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Ada 2013 (1)	34	70 (17)	17	69 (18)		47.1 %	1.00 [-9.29, 11.29]
Ada 2013 (2)	34	70 (16)	17	66 (17)		52.9 %	4.00 [-5.71, 13.71]
Subtotal (95% CI)	**68**		**34**			**100.0 %**	**2.59 [-4.47, 9.65]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.17$, df = 1 (P = 0.68); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.72 (P = 0.47)							
Total (95% CI)	**68**		**34**			**100.0 %**	**2.59 [-4.47, 9.65]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.17$, df = 1 (P = 0.68); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.72 (P = 0.47)							
Test for subgroup differences: Not applicable							



(1) Ada 2013 4 month training group with 50% of the control participants

(2) Ada 2013 2 month training group with 50% of the control participants

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Analysis 1.29. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 29 Mood - Beck Depression Index.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 29 Mood - Beck Depression Index

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Smith 2008	10	9.4 (1.9)	10	8.8 (3)		100.0 %	0.60 [-1.60, 2.80]
Subtotal (95% CI)	**10**		**10**			**100.0 %**	**0.60 [-1.60, 2.80]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.53 (P = 0.59)							
Total (95% CI)	**10**		**10**			**100.0 %**	**0.60 [-1.60, 2.80]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.53 (P = 0.59)							
Test for subgroup differences: Not applicable							

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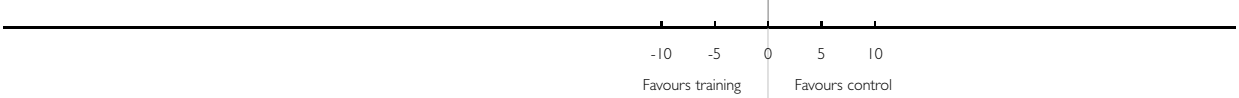
Analysis 1.30. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 30 Mood - Hospital Anxiety and Depression Scale (HADS) - anxiety score.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 30 Mood - Hospital Anxiety and Depression Scale (HADS) - anxiety score

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bateman 2001	24	4.42 (3.69)	36	6.36 (3.47)		100.0 %	-1.94 [-3.80, -0.08]
Subtotal (95% CI)	**24**		**36**			**100.0 %**	**-1.94 [-3.80, -0.08]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.04 (P = 0.041)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**24**		**36**			**100.0 %**	**-1.94 [-3.80, -0.08]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.04 (P = 0.041)							
Test for subgroup differences: Not applicable							



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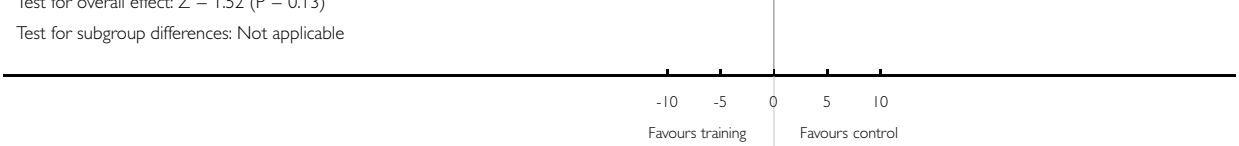
Analysis 1.31. Comparison 1 Cardiorespiratory training versus control - end of intervention, Outcome 31 Mood - Hospital Anxiety and Depression Scale (HADS) - depression score.

Review: Physical fitness training for stroke patients

Comparison: 1 Cardiorespiratory training versus control - end of intervention

Outcome: 31 Mood - Hospital Anxiety and Depression Scale (HADS) - depression score

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bateman 2001	24	5.54 (3.26)	36	6.94 (3.82)		100.0 %	-1.40 [-3.21, 0.41]
Subtotal (95% CI)	**24**		**36**			**100.0 %**	**-1.40 [-3.21, 0.41]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.52 (P = 0.13)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**24**		**36**			**100.0 %**	**-1.40 [-3.21, 0.41]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.52 (P = 0.13)							
Test for subgroup differences: Not applicable							



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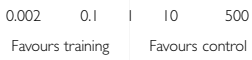
Analysis 2.1. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 1 Case fatality.

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 1 Case fatality

Study or subgroup	Training n/N	Control n/N	Odds Ratio M-H,Random,95% CI	Odds Ratio M-H,Random,95% CI
1 During usual care				
Bateman 2001	0/40	0/44		0.0 [0.0, 0.0]
Eich 2004	0/25	0/25		0.0 [0.0, 0.0]
Katz-Leurer 2003	1/46	1/46		1.00 [0.06, 16.48]
Subtotal (95% CI)	**111**	**115**		**1.00 [0.06, 16.48]**
Total events: 1 (Training), 1 (Control)				
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.0$, df = 0 (P = 1.00); $I^2 = 0.0\%$				
Test for overall effect: Z = 0.0 (P = 1.0)				
2 After usual care				
Mudge 2009	0/31	0/27		0.0 [0.0, 0.0]
Smith 2008	0/10	0/10		0.0 [0.0, 0.0]
Subtotal (95% CI)	**41**	**37**		**0.0 [0.0, 0.0]**
Total events: 0 (Training), 0 (Control)				
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.0$, df = 0 (P<0.00001); $I^2 = 0.0\%$				
Test for overall effect: Z = 0.0 (P < 0.00001)				
Total (95% CI)	**152**	**152**		**1.00 [0.06, 16.48]**
Total events: 1 (Training), 1 (Control)				
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.0$, df = 0 (P = 1.00); $I^2 = 0.0\%$				
Test for overall effect: Z = 0.0 (P = 1.0)				
Test for subgroup differences: Not applicable				



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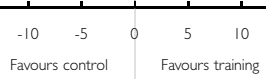
Analysis 2.2. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 2 Disability - Rivermead Mobility Index.

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 2 Disability - Rivermead Mobility Index

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bateman 2001	32	10.72 (3.3)	34	10.97 (3.35)		100.0 %	-0.25 [-1.85, 1.35]
Subtotal (95% CI)	**32**		**34**			**100.0 %**	**-0.25 [-1.85, 1.35]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.31 (P = 0.76)							
2 During usual care - ITT analysis using 'last observation carried forward' approach							
Bateman 2001	40	10.45 (3.57)	44	10.41 (3.49)		100.0 %	0.04 [-1.47, 1.55]
Subtotal (95% CI)	**40**		**44**			**100.0 %**	**0.04 [-1.47, 1.55]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.05 (P = 0.96)							
3 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							



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Analysis 2.3. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 3 Disability - Nottingham Extended ADL.

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 3 Disability - Nottingham Extended ADL

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bateman 2001	30	34.23 (16.3)	34	31.59 (17.17)		46.3 %	2.64 [-5.57, 10.85]
Subtotal (95% CI)	**30**		**34**			**46.3 %**	**2.64 [-5.57, 10.85]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.63 (P = 0.53)							
2 During usual care - ITT analysis using 'last observation carried forward' approach							
Bateman 2001	39	36.77 (17.7)	44	33.64 (17.62)		53.7 %	3.13 [-4.48, 10.74]
Subtotal (95% CI)	**39**		**44**			**53.7 %**	**3.13 [-4.48, 10.74]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.81 (P = 0.42)							
3 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**69**		**78**			**100.0 %**	**2.90 [-2.68, 8.48]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.01$, df = 1 (P = 0.93); $I^2 = 0.0\%$							
Test for overall effect: Z = 1.02 (P = 0.31)							
Test for subgroup differences: $Chi^2 = 0.01$, df = 1 (P = 0.93), $I^2 = 0.0\%$							

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Analysis 2.4. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 4 Disability - Physical Activity and Disability Scale.

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 4 Disability - Physical Activity and Disability Scale

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mudge 2009	31	82.1 (72.8)	27	62.2 (72.5)		100.0 %	19.90 [-17.58, 57.38]
Subtotal (95% CI)	**31**		**27**			**100.0 %**	**19.90 [-17.58, 57.38]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.04 (P = 0.30)							
Total (95% CI)	**31**		**27**			**100.0 %**	**19.90 [-17.58, 57.38]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.04 (P = 0.30)							
Test for subgroup differences: Not applicable							

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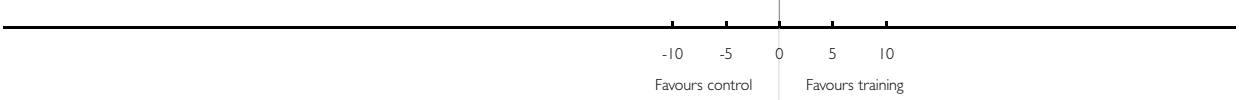
Analysis 2.5. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 5 Disability - Frenchay Activities Index (FAI).

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 5 Disability - Frenchay Activities Index (FAI)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Katz-Leurer 2003	41	27 (6.5)	38	26 (5)		100.0 %	1.00 [-1.55, 3.55]
Subtotal (95% CI)	**41**		**38**			**100.0 %**	**1.00 [-1.55, 3.55]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.77 (P = 0.44)							
Total (95% CI)	**41**		**38**			**100.0 %**	**1.00 [-1.55, 3.55]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.77 (P = 0.44)							
Test for subgroup differences: Not applicable							



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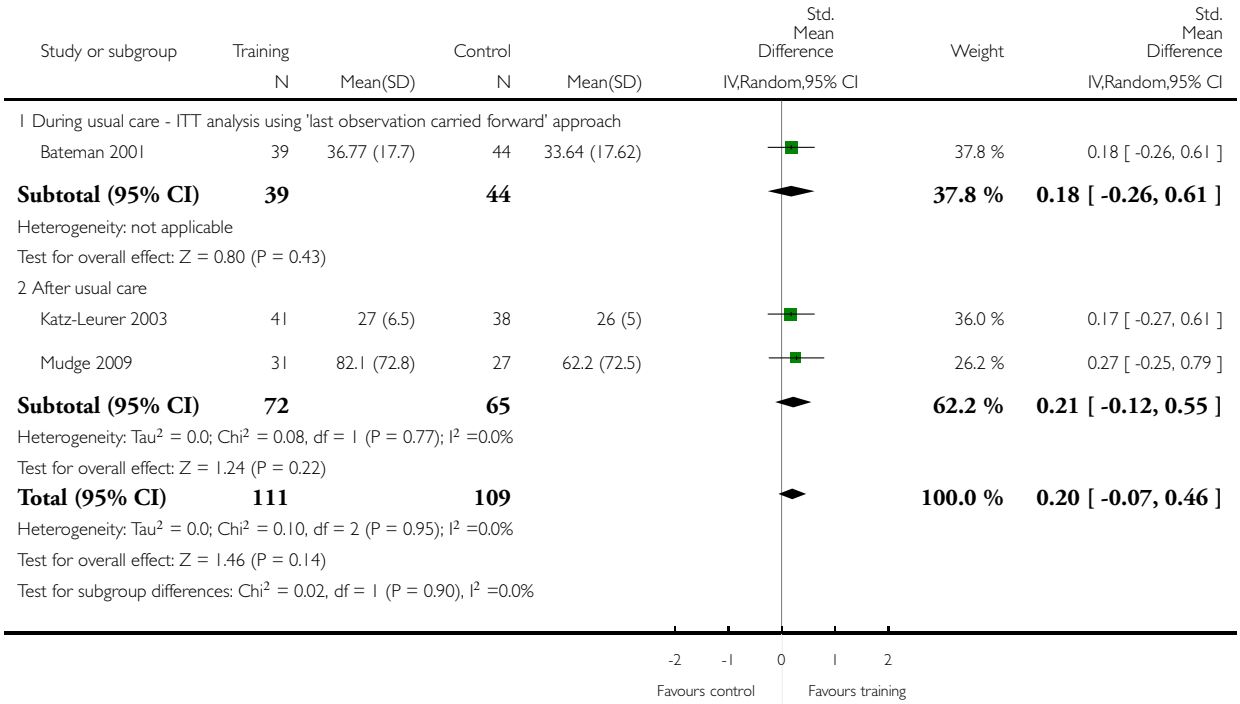
Analysis 2.6. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 6 Disability - Combined disability scales.

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 6 Disability - Combined disability scales



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Analysis 2.7. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 7 Physical fitness - maximum cycling work rate (Watts).

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 7 Physical fitness - maximum cycling work rate (Watts)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bateman 2001	40	78.63 (66.57)	44	73.52 (41.8)		100.0 %	5.11 [-18.93, 29.15]
Subtotal (95% CI)	**40**		**44**			**100.0 %**	**5.11 [-18.93, 29.15]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.42 (P = 0.68)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**40**		**44**			**100.0 %**	**5.11 [-18.93, 29.15]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.42 (P = 0.68)							
Test for subgroup differences: Not applicable							

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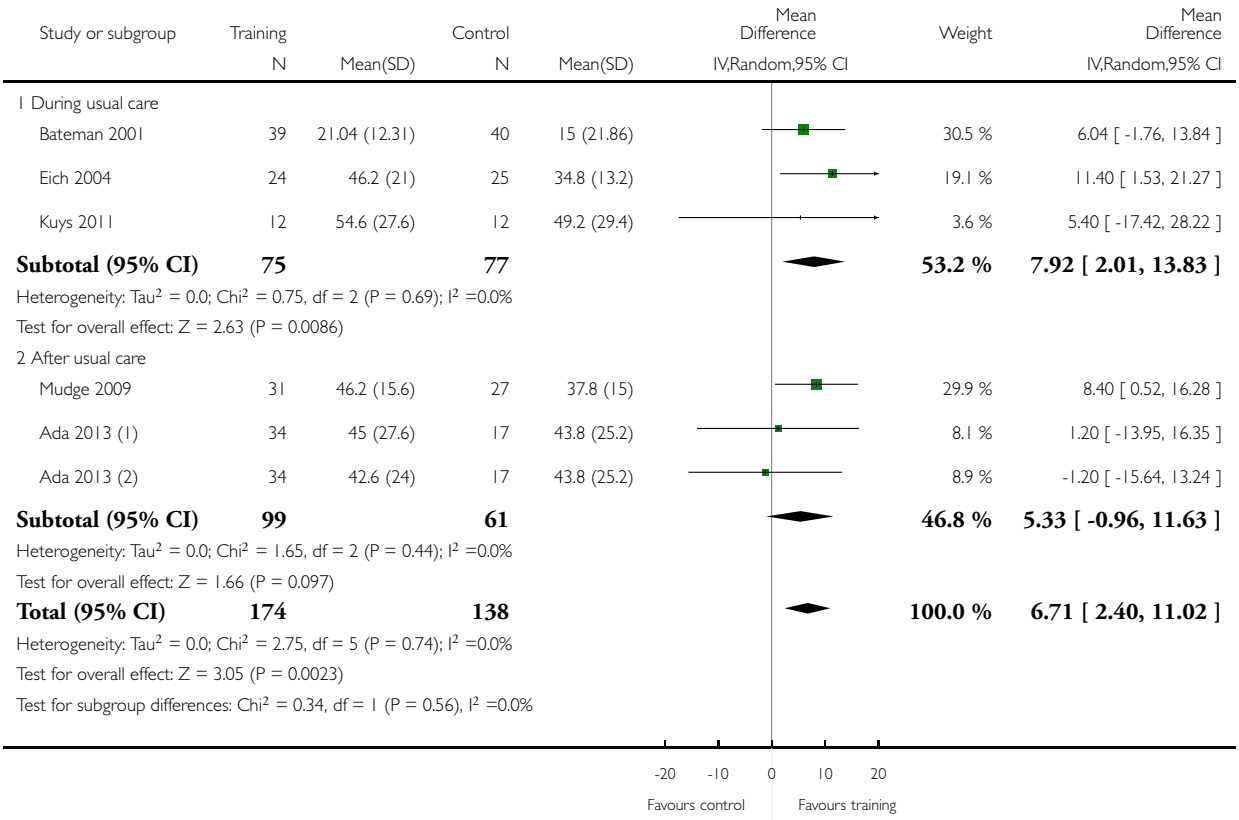
Analysis 2.8. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 8 Mobility - maximal gait speed (m/min).

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 8 Mobility - maximal gait speed (m/min)



(1) Ada 2013 4 month training group with 50% of the control participants

(2) Ada 2013 2 month training group with 50% of the control participants

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Analysis 2.9. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 9 Mobility - preferred gait speed (m/min).

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 9 Mobility - preferred gait speed (m/min)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Kuys 2011	12	43.2 (21)	12	39.6 (24.6)		16.8 %	3.60 [-14.70, 21.90]
Subtotal (95% CI)	**12**		**12**			**16.8 %**	**3.60 [-14.70, 21.90]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.39 (P = 0.70)							
2 After usual care							
Ada 2013 (1)	34	33 (17.4)	17	33.6 (25.2)		31.7 %	-0.60 [-13.93, 12.73]
Ada 2013 (2)	34	34.2 (21)	17	33.6 (16.2)		51.5 %	0.60 [-9.85, 11.05]
Subtotal (95% CI)	**68**		**34**			**83.2 %**	**0.14 [-8.08, 8.37]**
Heterogeneity: Tau^2 = 0.0; Chi^2 = 0.02, df = 1 (P = 0.89); I^2 =0.0%							
Test for overall effect: Z = 0.03 (P = 0.97)							
Total (95% CI)	**80**		**46**			**100.0 %**	**0.72 [-6.78, 8.22]**
Heterogeneity: Tau^2 = 0.0; Chi^2 = 0.13, df = 2 (P = 0.94); I^2 =0.0%							
Test for overall effect: Z = 0.19 (P = 0.85)							
Test for subgroup differences: Chi^2 = 0.11, df = 1 (P = 0.74), I^2 =0.0%							

(1) Ada 2013 2 month training group with 50% of the control participants

(2) Ada 2013 4 month training group with 50% of the control participants

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Analysis 2.10. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 10 Mobility - gait endurance (6-MWT metres).

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 10 Mobility - gait endurance (6-MWT metres)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Eich 2004	24	224.8 (90)	25	163 (70.2)		29.9 %	61.80 [16.48, 107.12]
Kuys 2011	12	291 (157)	12	293 (180)		7.9 %	-2.00 [-137.14, 133.14]
Subtotal (95% CI)	**36**		**37**			**37.8 %**	**55.35 [12.38, 98.32]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.77$, df = 1 (P = 0.38); $I^2 = 0.0\%$							
Test for overall effect: Z = 2.52 (P = 0.012)							
2 After usual care							
Mudge 2009	31	277 (125)	27	195 (104)		24.0 %	82.00 [23.05, 140.95]
Ada 2013 (1)	34	250 (130)	17	252 (125)		18.9 %	-2.00 [-75.76, 71.76]
Ada 2013 (2)	34	230 (122)	17	252 (125)		19.3 %	-22.00 [-94.20, 50.20]
Subtotal (95% CI)	**99**		**61**			**62.2 %**	**22.34 [-44.02, 88.69]**
Heterogeneity: $Tau^2 = 2228.72$; $Chi^2 = 5.70$, df = 2 (P = 0.06); $I^2 = 65\%$							
Test for overall effect: Z = 0.66 (P = 0.51)							
Total (95% CI)	**135**		**98**			**100.0 %**	**33.37 [-8.25, 74.99]**
Heterogeneity: $Tau^2 = 973.78$; $Chi^2 = 7.29$, df = 4 (P = 0.12); $I^2 = 45\%$							
Test for overall effect: Z = 1.57 (P = 0.12)							
Test for subgroup differences: $Chi^2 = 0.67$, df = 1 (P = 0.41), $I^2 = 0.0\%$							

(1) Ada 2013 4 month training group with 50% of the control participants

(2) Ada 2013 2 month training group with 50% of the control participants

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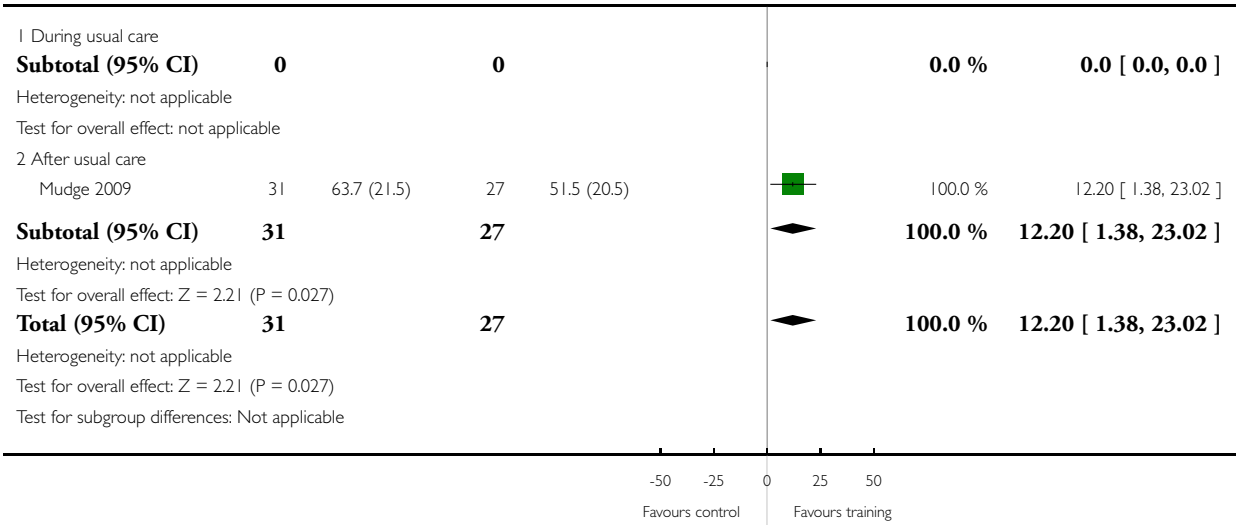
Analysis 2.11. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 11 Mobility - peak activity index (steps/min).

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 11 Mobility - peak activity index (steps/min)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mudge 2009	31	63.7 (21.5)	27	51.5 (20.5)		100.0 %	12.20 [1.38, 23.02]
Subtotal (95% CI)	**31**		**27**			**100.0 %**	**12.20 [1.38, 23.02]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.21 (P = 0.027)							
Total (95% CI)	**31**		**27**			**100.0 %**	**12.20 [1.38, 23.02]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.21 (P = 0.027)							
Test for subgroup differences: Not applicable							



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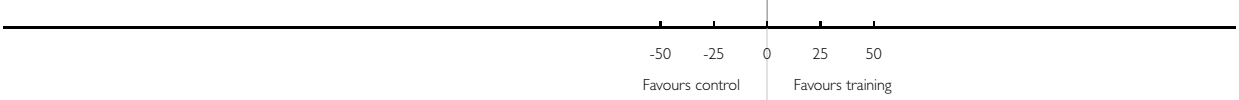
Analysis 2.12. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 12 Mobility - max step rate in 1 min.

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 12 Mobility - max step rate in 1 min

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mudge 2009	31	87.7 (21)	27	75.6 (22.2)		100.0 %	12.10 [0.93, 23.27]
Subtotal (95% CI)	**31**		**27**			**100.0 %**	**12.10 [0.93, 23.27]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.12 (P = 0.034)							
Total (95% CI)	**31**		**27**			**100.0 %**	**12.10 [0.93, 23.27]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.12 (P = 0.034)							
Test for subgroup differences: Not applicable							



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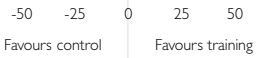
Analysis 2.13. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 13 Mobility - Stroke Impact Scale (mobility domain).

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 13 Mobility - Stroke Impact Scale (mobility domain)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Smith 2008	10	78.3 (13.3)	10	72.4 (18)		100.0 %	5.90 [-7.97, 19.77]
Subtotal (95% CI)	**10**		**10**			**100.0 %**	**5.90 [-7.97, 19.77]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.83 (P = 0.40)							
Total (95% CI)	**10**		**10**			**100.0 %**	**5.90 [-7.97, 19.77]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.83 (P = 0.40)							
Test for subgroup differences: Not applicable							



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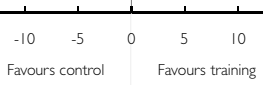
Analysis 2.14. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 14 Physical function - Berg Balance scale.

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 14 Physical function - Berg Balance scale

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bateman 2001	40	45.35 (12.79)	44	46.14 (11.07)		100.0 %	-0.79 [-5.93, 4.35]
Subtotal (95% CI)	**40**		**44**			**100.0 %**	**-0.79 [-5.93, 4.35]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.30 (P = 0.76)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**40**		**44**			**100.0 %**	**-0.79 [-5.93, 4.35]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.30 (P = 0.76)							
Test for subgroup differences: Not applicable							



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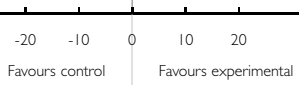
Analysis 2.15. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 15 Health-related QoL - EuroQol EQ-5D.

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 15 Health-related QoL - EuroQol EQ-5D

Study or subgroup	Training N	Mean(SD)[0 to 100]	Control N	Mean(SD)[0 to 100]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Ada 2013 (1)	34	67 (19)	17	72 (19)		50.9 %	-5.00 [-16.06, 6.06]
Ada 2013 (2)	34	63 (20)	17	72 (19)		49.1 %	-9.00 [-20.26, 2.26]
Subtotal (95% CI)	**68**		**34**			**100.0 %**	**-6.96 [-14.86, 0.93]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.25$, df = 1 (P = 0.62); $I^2 = 0.0\%$							
Test for overall effect: Z = 1.73 (P = 0.084)							
Total (95% CI)	**68**		**34**			**100.0 %**	**-6.96 [-14.86, 0.93]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.25$, df = 1 (P = 0.62); $I^2 = 0.0\%$							
Test for overall effect: Z = 1.73 (P = 0.084)							
Test for subgroup differences: Not applicable							



(1) Ada 2013 4 month training group with 50% of the control participants

(2) Ada 2013 2 month training group with 50% of the control participants

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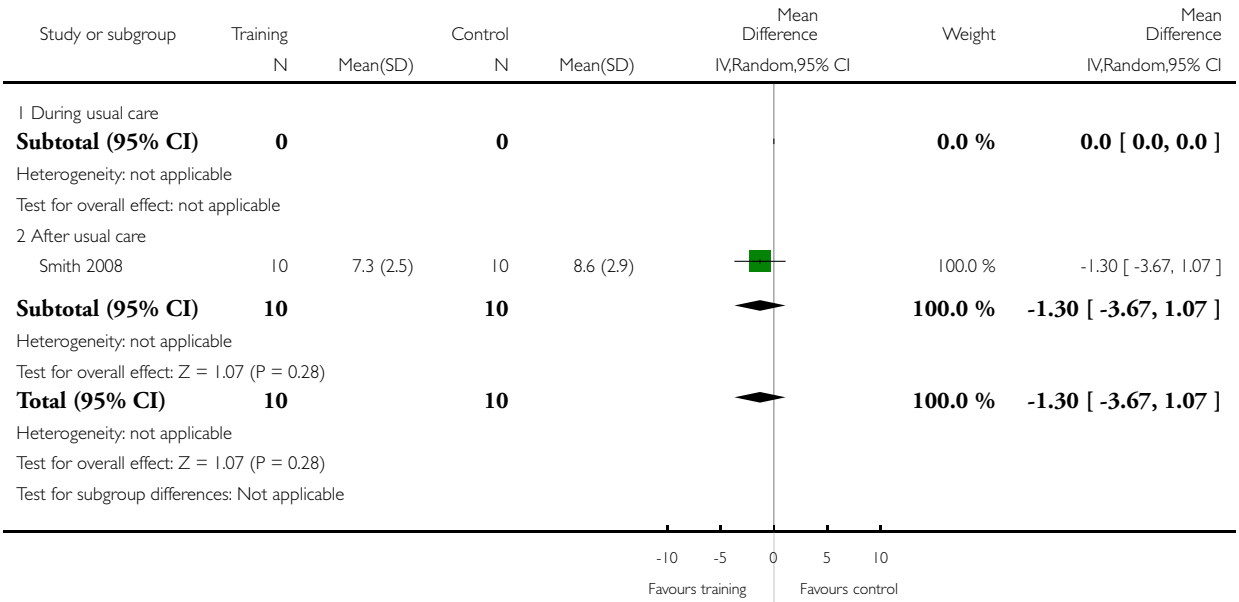
Analysis 2.16. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 16 Mood - Beck Depression Index.

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 16 Mood - Beck Depression Index

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Smith 2008	10	7.3 (2.5)	10	8.6 (2.9)		100.0 %	-1.30 [-3.67, 1.07]
Subtotal (95% CI)	**10**		**10**			**100.0 %**	**-1.30 [-3.67, 1.07]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.07 (P = 0.28)							
Total (95% CI)	**10**		**10**			**100.0 %**	**-1.30 [-3.67, 1.07]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.07 (P = 0.28)							
Test for subgroup differences: Not applicable							



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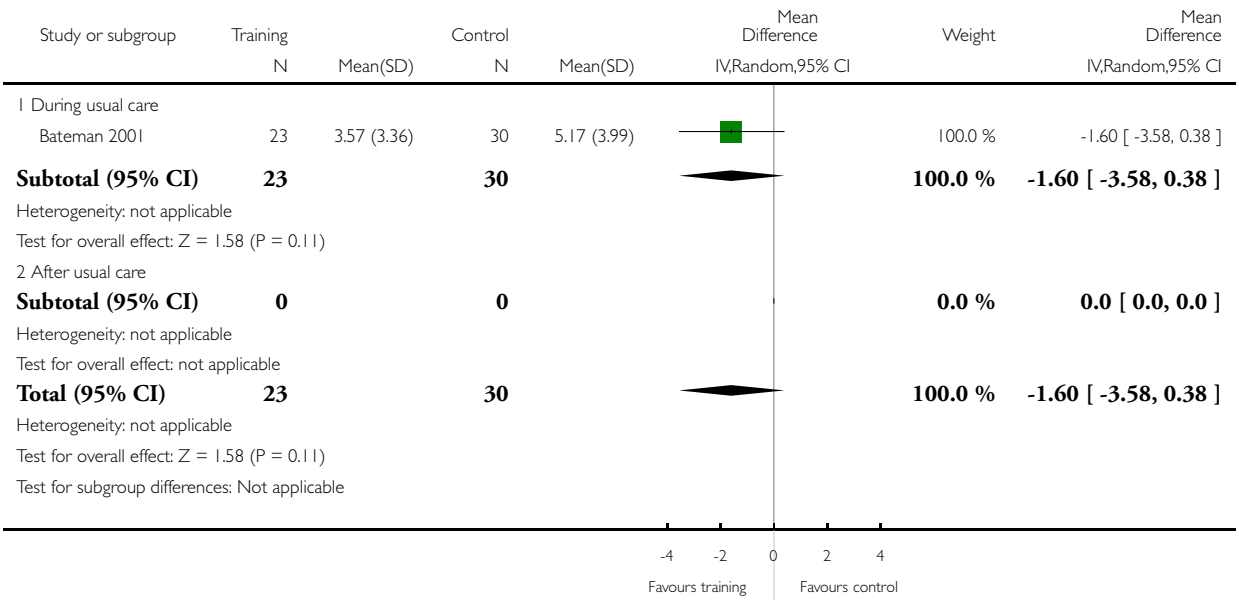
Analysis 2.17. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 17 Mood - Hospital Anxiety and Depression Scale (HADS) - anxiety score.

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 17 Mood - Hospital Anxiety and Depression Scale (HADS) - anxiety score

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bateman 2001	23	3.57 (3.36)	30	5.17 (3.99)		100.0 %	-1.60 [-3.58, 0.38]
Subtotal (95% CI)	**23**		**30**			**100.0 %**	**-1.60 [-3.58, 0.38]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.58 (P = 0.11)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**23**		**30**			**100.0 %**	**-1.60 [-3.58, 0.38]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.58 (P = 0.11)							
Test for subgroup differences: Not applicable							



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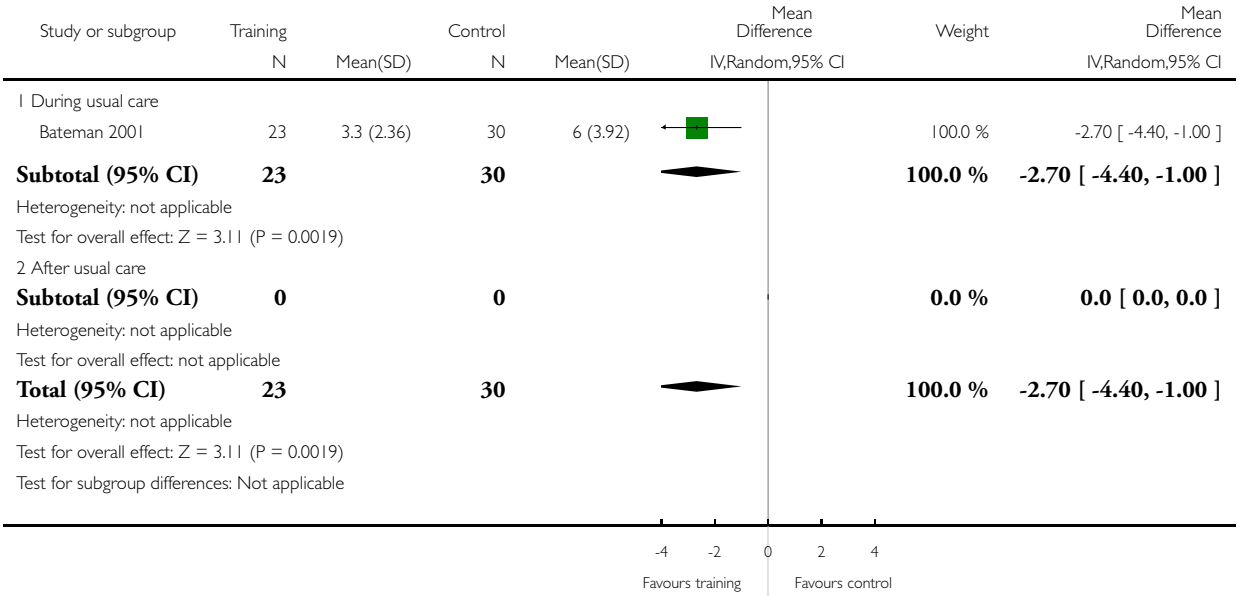
Analysis 2.18. Comparison 2 Cardiorespiratory training versus control - end of retention follow-up, Outcome 18 Mood - Hospital Anxiety and Depression Scale (HADS) - depression score.

Review: Physical fitness training for stroke patients

Comparison: 2 Cardiorespiratory training versus control - end of retention follow-up

Outcome: 18 Mood - Hospital Anxiety and Depression Scale (HADS) - depression score

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bateman 2001	23	3.3 (2.36)	30	6 (3.92)		100.0 %	-2.70 [-4.40, -1.00]
Subtotal (95% CI)	**23**		**30**			**100.0 %**	**-2.70 [-4.40, -1.00]**
Heterogeneity: not applicable							
Test for overall effect: Z = 3.11 (P = 0.0019)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**23**		**30**			**100.0 %**	**-2.70 [-4.40, -1.00]**
Heterogeneity: not applicable							
Test for overall effect: Z = 3.11 (P = 0.0019)							
Test for subgroup differences: Not applicable							



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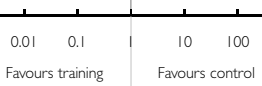
Analysis 3.1. Comparison 3 Resistance training versus control - end of intervention, Outcome 1 Case fatality.

Review: Physical fitness training for stroke patients

Comparison: 3 Resistance training versus control - end of intervention

Outcome: 1 Case fatality

Study or subgroup	Training n/N	Control n/N	Odds Ratio M-H,Random,95% CI	Odds Ratio M-H,Random,95% CI
1 During usual care				
Bale 2008	0/8	0/10		0.0 [0.0, 0.0]
Inaba 1973	0/28	0/26		0.0 [0.0, 0.0]
Winstein 2004	0/21	0/20		0.0 [0.0, 0.0]
Subtotal (95% CI)	**57**	**56**		**0.0 [0.0, 0.0]**
Total events: 0 (Training), 0 (Control)				
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.0$, df = 0 (P<0.00001); $I^2 = 0.0\%$				
Test for overall effect: Z = 0.0 (P < 0.00001)				
2 After usual care				
Aidar 2012	0/14	0/15		0.0 [0.0, 0.0]
Flansbjer 2008	0/16	0/9		0.0 [0.0, 0.0]
Kim 2001	0/10	0/10		0.0 [0.0, 0.0]
Ouellette 2004	0/21	0/21		0.0 [0.0, 0.0]
Sims 2009	0/23	0/22		0.0 [0.0, 0.0]
Subtotal (95% CI)	**84**	**77**		**0.0 [0.0, 0.0]**
Total events: 0 (Training), 0 (Control)				
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.0$, df = 0 (P<0.00001); $I^2 = 0.0\%$				
Test for overall effect: Z = 0.0 (P < 0.00001)				
Total (95% CI)	**141**	**133**		**0.0 [0.0, 0.0]**
Total events: 0 (Training), 0 (Control)				
Heterogeneity: $Tau^2 =$; $Chi^2 = 0.0$, df = 0 (P<0.00001); $I^2 = 0.0\%$				
Test for overall effect: Z = 0.0 (P < 0.00001)				
Test for subgroup differences: $Chi^2 = 0.0$, df = -1 (P = 0.0), $I^2 = 0.0\%$				



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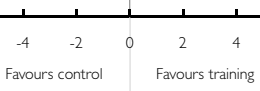
Analysis 3.2. Comparison 3 Resistance training versus control - end of intervention, Outcome 2 Physical fitness - composite measure of muscle strength.

Review: Physical fitness training for stroke patients

Comparison: 3 Resistance training versus control - end of intervention

Outcome: 2 Physical fitness - composite measure of muscle strength

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 During and after usual care							
Winstein 2004	20	353.53 (296.25)	20	220.58 (260.26)		68.3 %	0.47 [-0.16, 1.10]
Subtotal (95% CI)	**20**		**20**			**68.3 %**	**0.47 [-0.16, 1.10]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.46 (P = 0.15)							
3 After usual care							
Kim 2001	10	507 (559)	10	142 (193)		31.7 %	0.84 [-0.09, 1.76]
Subtotal (95% CI)	**10**		**10**			**31.7 %**	**0.84 [-0.09, 1.76]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.78 (P = 0.076)							
Total (95% CI)	**30**		**30**			**100.0 %**	**0.58 [0.06, 1.10]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.42$, df = 1 (P = 0.52); $I^2 = 0.0\%$							
Test for overall effect: Z = 2.20 (P = 0.028)							
Test for subgroup differences: $Chi^2 = 0.42$, df = 1 (P = 0.52), $I^2 = 0.0\%$							



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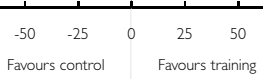
Analysis 3.3. Comparison 3 Resistance training versus control - end of intervention, Outcome 3 Physical fitness - muscle strength, knee extension (Nm).

Review: Physical fitness training for stroke patients

Comparison: 3 Resistance training versus control - end of intervention

Outcome: 3 Physical fitness - muscle strength, knee extension (Nm)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bale 2008 (1)	8	17.7 (9.8)	10	12.9 (13.5)		57.6 %	4.80 [-5.98, 15.58]
Subtotal (95% CI)	**8**		**10**			**57.6 %**	**4.80 [-5.98, 15.58]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.87 (P = 0.38)							
2 After usual care							
Flansbjer 2008	15	63.1 (19.6)	9	41.3 (20.9)		42.4 %	21.80 [4.92, 38.68]
Subtotal (95% CI)	**15**		**9**			**42.4 %**	**21.80 [4.92, 38.68]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.53 (P = 0.011)							
Total (95% CI)	**23**		**19**			**100.0 %**	**12.01 [-4.46, 28.47]**
Heterogeneity: Tau^2 = 92.31; Chi^2 = 2.77, df = 1 (P = 0.10); I^2 =64%							
Test for overall effect: Z = 1.43 (P = 0.15)							
Test for subgroup differences: Chi^2 = 2.77, df = 1 (P = 0.10), I^2 =64%							



(1) Results are presented as mean change scores

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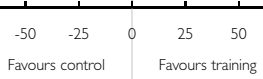
Analysis 3.4. Comparison 3 Resistance training versus control - end of intervention, Outcome 4 Physical fitness - muscle strength, knee flexion (Nm).

Review: Physical fitness training for stroke patients

Comparison: 3 Resistance training versus control - end of intervention

Outcome: 4 Physical fitness - muscle strength, knee flexion (Nm)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bale 2008 (1)	8	7.3 (6.9)	10	2.8 (4.8)		68.0 %	4.50 [-1.13, 10.13]
Subtotal (95% CI)	**8**		**10**			**68.0 %**	**4.50 [-1.13, 10.13]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.57 (P = 0.12)							
2 After usual care							
Flansbjer 2008	15	74 (27.7)	9	53.5 (21.1)		32.0 %	20.50 [0.84, 40.16]
Subtotal (95% CI)	**15**		**9**			**32.0 %**	**20.50 [0.84, 40.16]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.04 (P = 0.041)							
Total (95% CI)	**23**		**19**			**100.0 %**	**9.61 [-5.01, 24.24]**
Heterogeneity: Tau^2 = 73.56; Chi^2 = 2.35, df = 1 (P = 0.13); I^2 =57%							
Test for overall effect: Z = 1.29 (P = 0.20)							
Test for subgroup differences: Chi^2 = 2.35, df = 1 (P = 0.13), I^2 =57%							



(1) Results are presented as mean change scores

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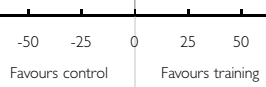
Analysis 3.5. Comparison 3 Resistance training versus control - end of intervention, Outcome 5 Mobility - maximal gait speed (m/min).

Review: Physical fitness training for stroke patients

Comparison: 3 Resistance training versus control - end of intervention

Outcome: 5 Mobility - maximal gait speed (m/min)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bale 2008 (1)	8	17.4 (6)	10	9 (6)		30.5 %	8.40 [2.82, 13.98]
Subtotal (95% CI)	**8**		**10**			**30.5 %**	**8.40 [2.82, 13.98]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.95 (P = 0.0032)							
2 After usual care							
Flansbjer 2008 (2)	15	3.98 (7.89)	9	4.63 (7.29)		28.3 %	-0.65 [-6.86, 5.56]
Kim 2001 (3)	10	3 (5.4)	10	4.2 (4.8)		34.4 %	-1.20 [-5.68, 3.28]
Ouellette 2004	21	51.6 (30.24)	21	52.2 (32.99)		6.8 %	-0.60 [-19.74, 18.54]
Subtotal (95% CI)	**46**		**40**			**69.5 %**	**-1.00 [-4.57, 2.57]**
Heterogeneity: Tau^2 = 0.0; Chi^2 = 0.02, df = 2 (P = 0.99); I^2 =0.0%							
Test for overall effect: Z = 0.55 (P = 0.58)							
Total (95% CI)	**54**		**50**			**100.0 %**	**1.92 [-3.50, 7.35]**
Heterogeneity: Tau^2 = 17.04; Chi^2 = 7.76, df = 3 (P = 0.05); I^2 =61%							
Test for overall effect: Z = 0.69 (P = 0.49)							
Test for subgroup differences: Chi^2 = 7.74, df = 1 (P = 0.01), I^2 =87%							



(1) Results are presented as mean change scores

(2) Data were obtained from the authors and are presented as mean change scores

(3) Results are presented as mean change scores

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Analysis 3.6. Comparison 3 Resistance training versus control - end of intervention, Outcome 6 Mobility - preferred gait speed (m/min).

Review: Physical fitness training for stroke patients

Comparison: 3 Resistance training versus control - end of intervention

Outcome: 6 Mobility - preferred gait speed (m/min)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bale 2008 (1)	8	13.8 (6)	10	4.8 (6)		39.0 %	9.00 [3.42, 14.58]
Subtotal (95% CI)	**8**		**10**			**39.0 %**	**9.00 [3.42, 14.58]**
Heterogeneity: not applicable							
Test for overall effect: Z = 3.16 (P = 0.0016)							
2 After usual care							
Kim 2001	10	2.4 (7.8)	10	5.4 (4.2)		39.2 %	-3.00 [-8.49, 2.49]
Ouellette 2004	21	38.4 (22)	21	38.4 (24.75)		21.7 %	0.0 [-14.16, 14.16]
Subtotal (95% CI)	**31**		**31**			**61.0 %**	**-2.61 [-7.73, 2.51]**
Heterogeneity: Tau^2 = 0.0; Chi^2 = 0.15, df = 1 (P = 0.70); I^2 =0.0%							
Test for overall effect: Z = 1.00 (P = 0.32)							
Total (95% CI)	**39**		**41**			**100.0 %**	**2.34 [-6.77, 11.45]**
Heterogeneity: Tau^2 = 47.20; Chi^2 = 9.18, df = 2 (P = 0.01); I^2 =78%							
Test for overall effect: Z = 0.50 (P = 0.61)							
Test for subgroup differences: Chi^2 = 9.03, df = 1 (P = 0.00), I^2 =89%							

(1) Results are presented as mean change scores

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Analysis 3.7. Comparison 3 Resistance training versus control - end of intervention, Outcome 7 Mobility - gait endurance (6-MWT metres).

Review: Physical fitness training for stroke patients

Comparison: 3 Resistance training versus control - end of intervention

Outcome: 7 Mobility - gait endurance (6-MWT metres)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Flansbjer 2008	15	250 (131)	9	247 (142)		40.2 %	3.00 [-111.02, 117.02]
Ouellette 2004	21	239.1 (138.85)	21	234.8 (169.1)		59.8 %	4.30 [-89.28, 97.88]
Subtotal (95% CI)	**36**		**30**			**100.0 %**	**3.78 [-68.56, 76.11]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.00$, df = 1 (P = 0.99); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.10 (P = 0.92)							
Total (95% CI)	**36**		**30**			**100.0 %**	**3.78 [-68.56, 76.11]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.00$, df = 1 (P = 0.99); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.10 (P = 0.92)							
Test for subgroup differences: Not applicable							

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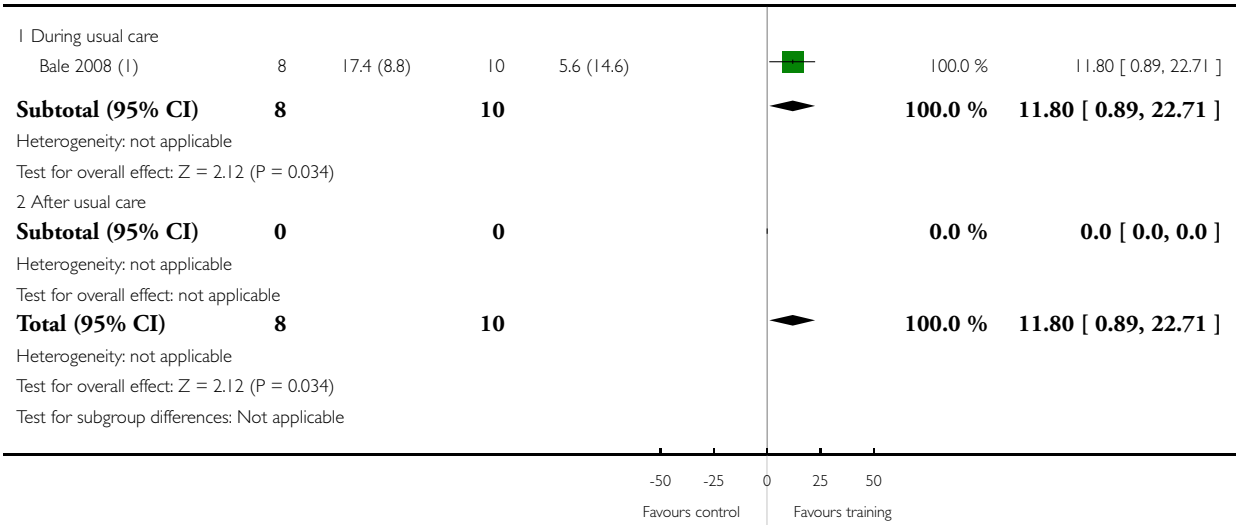
Analysis 3.8. Comparison 3 Resistance training versus control - end of intervention, Outcome 8 Physical function - weight-bearing (% body weight - affected side).

Review: Physical fitness training for stroke patients

Comparison: 3 Resistance training versus control - end of intervention

Outcome: 8 Physical function - weight-bearing (% body weight - affected side)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Bale 2008 (1)	8	17.4 (8.8)	10	5.6 (14.6)		100.0 %	11.80 [0.89, 22.71]
Subtotal (95% CI)	**8**		**10**			**100.0 %**	**11.80 [0.89, 22.71]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.12 (P = 0.034)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**8**		**10**			**100.0 %**	**11.80 [0.89, 22.71]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.12 (P = 0.034)							
Test for subgroup differences: Not applicable							



(1) Results are presented as mean change scores

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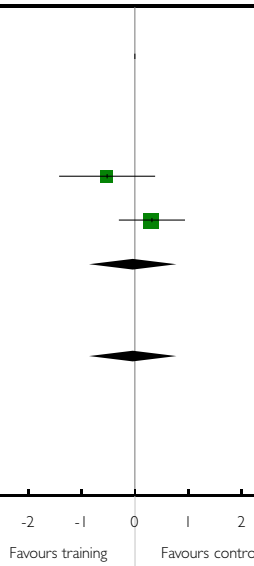
Analysis 3.9. Comparison 3 Resistance training versus control - end of intervention, Outcome 9 Physical function - stair climbing, maximal (sec/step).

Review: Physical fitness training for stroke patients

Comparison: 3 Resistance training versus control - end of intervention

Outcome: 9 Physical function - stair climbing, maximal (sec/step)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Kim 2001	10	0.03 (0.08)	10	0.08 (0.1)		42.3 %	-0.53 [-1.42, 0.37]
Ouellette 2004	20	0.65 (0.41)	21	0.53 (0.34)		57.7 %	0.31 [-0.30, 0.93]
Subtotal (95% CI)	**30**		**31**			**100.0 %**	**-0.04 [-0.86, 0.77]**
Heterogeneity: $Tau^2 = 0.20$; $Chi^2 = 2.30$, df = 1 (P = 0.13); $I^2 = 57\%$							
Test for overall effect: Z = 0.10 (P = 0.92)							
Total (95% CI)	**30**		**31**			**100.0 %**	**-0.04 [-0.86, 0.77]**
Heterogeneity: $Tau^2 = 0.20$; $Chi^2 = 2.30$, df = 1 (P = 0.13); $I^2 = 57\%$							
Test for overall effect: Z = 0.10 (P = 0.92)							
Test for subgroup differences: Not applicable							



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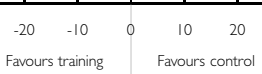
Analysis 3.10. Comparison 3 Resistance training versus control - end of intervention, Outcome 10 Physical function - Timed Up and Go (sec).

Review: Physical fitness training for stroke patients

Comparison: 3 Resistance training versus control - end of intervention

Outcome: 10 Physical function - Timed Up and Go (sec)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Flansbjer 2008	15	23.1 (10.3)	9	24.3 (14.2)		100.0 %	-1.20 [-11.84, 9.44]
Subtotal (95% CI)	**15**		**9**			**100.0 %**	**-1.20 [-11.84, 9.44]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.22 (P = 0.83)							
Total (95% CI)	**15**		**9**			**100.0 %**	**-1.20 [-11.84, 9.44]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.22 (P = 0.83)							
Test for subgroup differences: Not applicable							



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Analysis 3.11. Comparison 3 Resistance training versus control - end of intervention, Outcome 11 Health-related QoL - SF-36 mental health.

Review: Physical fitness training for stroke patients

Comparison: 3 Resistance training versus control - end of intervention

Outcome: 11 Health-related QoL - SF-36 mental health

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Kim 2001 (1)	10	1.73 (7.34)	10	-1.07 (10.13)		100.0 %	2.80 [-4.95, 10.55]
Subtotal (95% CI)	**10**		**10**			**100.0 %**	**2.80 [-4.95, 10.55]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.71 (P = 0.48)							
Total (95% CI)	**10**		**10**			**100.0 %**	**2.80 [-4.95, 10.55]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.71 (P = 0.48)							
Test for subgroup differences: Not applicable							

(1) Results are presented as mean change scores

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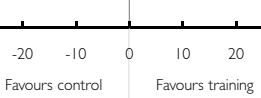
Analysis 3.12. Comparison 3 Resistance training versus control - end of intervention, Outcome 12 Health-related QoL - SF-36 physical functioning.

Review: Physical fitness training for stroke patients

Comparison: 3 Resistance training versus control - end of intervention

Outcome: 12 Health-related QoL - SF-36 physical functioning

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Kim 2001 (1)	10	0.74 (7.15)	10	-0.73 (5.81)		100.0 %	1.47 [-4.24, 7.18]
Subtotal (95% CI)	**10**		**10**			**100.0 %**	**1.47 [-4.24, 7.18]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.50 (P = 0.61)							
Total (95% CI)	**10**		**10**			**100.0 %**	**1.47 [-4.24, 7.18]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.50 (P = 0.61)							
Test for subgroup differences: Not applicable							



(1) Kim 2001 - results are presented as mean change scores

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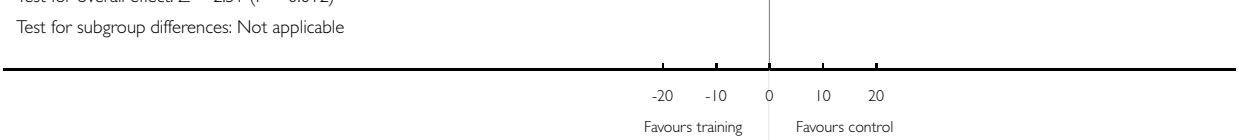
Analysis 3.13. Comparison 3 Resistance training versus control - end of intervention, Outcome 13 Mood - Centre for Epidemiologic Studies for Depression scale (CES-D).

Review: Physical fitness training for stroke patients

Comparison: 3 Resistance training versus control - end of intervention

Outcome: 13 Mood - Centre for Epidemiologic Studies for Depression scale (CES-D)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Sims 2009	44	15.13 (8.49)	44	20.62 (11.79)		100.0 %	-5.49 [-9.78, -1.20]
Subtotal (95% CI)	**44**		**44**			**100.0 %**	**-5.49 [-9.78, -1.20]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.51 (P = 0.012)							
Total (95% CI)	**44**		**44**			**100.0 %**	**-5.49 [-9.78, -1.20]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.51 (P = 0.012)							
Test for subgroup differences: Not applicable							



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Analysis 3.14. Comparison 3 Resistance training versus control - end of intervention, Outcome 14 Mood - State Trait Anxiety Inventory - Trait Anxiety (score 20 to 80).

Review: Physical fitness training for stroke patients

Comparison: 3 Resistance training versus control - end of intervention

Outcome: 14 Mood - State Trait Anxiety Inventory - Trait Anxiety (score 20 to 80)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Aidar 2012	11	39.9 (7.3)	13	42.6 (12.1)		100.0 %	-2.70 [-10.57, 5.17]
Subtotal (95% CI)	**11**		**13**			**100.0 %**	**-2.70 [-10.57, 5.17]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.67 (P = 0.50)							
Total (95% CI)	**11**		**13**			**100.0 %**	**-2.70 [-10.57, 5.17]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.67 (P = 0.50)							
Test for subgroup differences: Not applicable							

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Analysis 3.15. Comparison 3 Resistance training versus control - end of intervention, Outcome 15 Mood - State Trait Anxiety Inventory - State Anxiety (score 20 to 80).

Review: Physical fitness training for stroke patients

Comparison: 3 Resistance training versus control - end of intervention

Outcome: 15 Mood - State Trait Anxiety Inventory - State Anxiety (score 20 to 80)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Aidar 2012	11	44.9 (7.7)	13	47.5 (8)		100.0 %	-2.60 [-8.89, 3.69]
Subtotal (95% CI)	**11**		**13**			**100.0 %**	**-2.60 [-8.89, 3.69]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.81 (P = 0.42)							
Total (95% CI)	**11**		**13**			**100.0 %**	**-2.60 [-8.89, 3.69]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.81 (P = 0.42)							
Test for subgroup differences: Not applicable							

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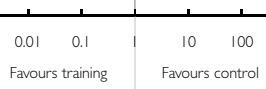
Analysis 4.1. Comparison 4 Resistance training versus control - end of retention follow-up, Outcome 1 Case fatality.

Review: Physical fitness training for stroke patients

Comparison: 4 Resistance training versus control - end of retention follow-up

Outcome: 1 Case fatality

Study or subgroup	Training n/N	Control n/N	Odds Ratio M-H,Random,95% CI	Odds Ratio M-H,Random,95% CI
1 During usual care				
Inaba 1973	0/28	0/26		0.0 [0.0, 0.0]
Winstein 2004	0/21	0/20		0.0 [0.0, 0.0]
Subtotal (95% CI)	**49**	**46**		**0.0 [0.0, 0.0]**
Total events: 0 (Training), 0 (Control)				
Heterogeneity: Tau^2 = 0.0; Chi^2 = 0.0, df = 0 (P<0.00001); I^2 =0.0%				
Test for overall effect: Z = 0.0 (P < 0.00001)				
2 After usual care				
Sims 2009	0/21	0/22		0.0 [0.0, 0.0]
Subtotal (95% CI)	**21**	**22**		**0.0 [0.0, 0.0]**
Total events: 0 (Training), 0 (Control)				
Heterogeneity: not applicable				
Test for overall effect: Z = 0.0 (P < 0.00001)				
Total (95% CI)	**70**	**68**		**0.0 [0.0, 0.0]**
Total events: 0 (Training), 0 (Control)				
Heterogeneity: Tau^2 = ; Chi^2 = 0.0, df = 0 (P<0.00001); I^2 =0.0%				
Test for overall effect: Z = 0.0 (P < 0.00001)				
Test for subgroup differences: Chi^2 = 0.0, df = -1 (P = 0.0), I^2 =0.0%				



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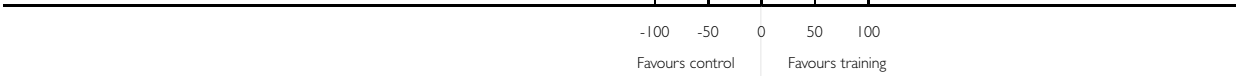
Analysis 4.2. Comparison 4 Resistance training versus control - end of retention follow-up, Outcome 2 Physical fitness - muscle strength, knee extension (Nm).

Review: Physical fitness training for stroke patients

Comparison: 4 Resistance training versus control - end of retention follow-up

Outcome: 2 Physical fitness - muscle strength, knee extension (Nm)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Flansbjer 2008	15	59.4 (22.6)	9	42 (20.1)		100.0 %	17.40 [-0.01, 34.81]
Subtotal (95% CI)	**15**		**9**			**100.0 %**	**17.40 [-0.01, 34.81]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.96 (P = 0.050)							
Total (95% CI)	**15**		**9**			**100.0 %**	**17.40 [-0.01, 34.81]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.96 (P = 0.050)							
Test for subgroup differences: Not applicable							



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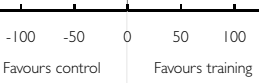
Analysis 4.3. Comparison 4 Resistance training versus control - end of retention follow-up, Outcome 3 Physical fitness - muscle strength, knee flexion (Nm).

Review: Physical fitness training for stroke patients

Comparison: 4 Resistance training versus control - end of retention follow-up

Outcome: 3 Physical fitness - muscle strength, knee flexion (Nm)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Flansbjer 2008	15	70.6 (26.7)	9	53 (22.1)		100.0 %	17.60 [-2.17, 37.37]
Subtotal (95% CI)	**15**		**9**			**100.0 %**	**17.60 [-2.17, 37.37]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.74 (P = 0.081)							
Total (95% CI)	**15**		**9**			**100.0 %**	**17.60 [-2.17, 37.37]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.74 (P = 0.081)							
Test for subgroup differences: Not applicable							



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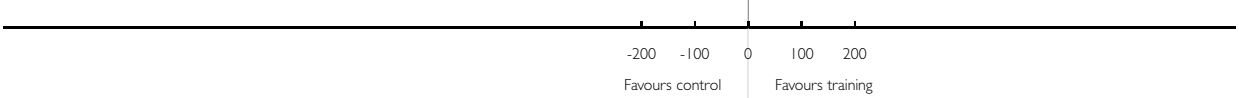
Analysis 4.4. Comparison 4 Resistance training versus control - end of retention follow-up, Outcome 4 Mobility - maximal gait speed (m/min).

Review: Physical fitness training for stroke patients

Comparison: 4 Resistance training versus control - end of retention follow-up

Outcome: 4 Mobility - maximal gait speed (m/min)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Flansbjer 2008	15	96.6 (59.4)	9	116.4 (106.8)		100.0 %	-19.80 [-95.77, 56.17]
Subtotal (95% CI)	**15**		**9**			**100.0 %**	**-19.80 [-95.77, 56.17]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.51 (P = 0.61)							
Total (95% CI)	**15**		**9**			**100.0 %**	**-19.80 [-95.77, 56.17]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.51 (P = 0.61)							
Test for subgroup differences: Not applicable							



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Analysis 4.5. Comparison 4 Resistance training versus control - end of retention follow-up, Outcome 5 Mobility - gait endurance (6-MWT metres).

Review: Physical fitness training for stroke patients

Comparison: 4 Resistance training versus control - end of retention follow-up

Outcome: 5 Mobility - gait endurance (6-MWT metres)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Flansbjer 2008	15	251 (144)	9	240 (140)		100.0 %	11.00 [-105.95, 127.95]
Subtotal (95% CI)	**15**		**9**			**100.0 %**	**11.00 [-105.95, 127.95]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.18 (P = 0.85)							
Total (95% CI)	**15**		**9**			**100.0 %**	**11.00 [-105.95, 127.95]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.18 (P = 0.85)							
Test for subgroup differences: Not applicable							

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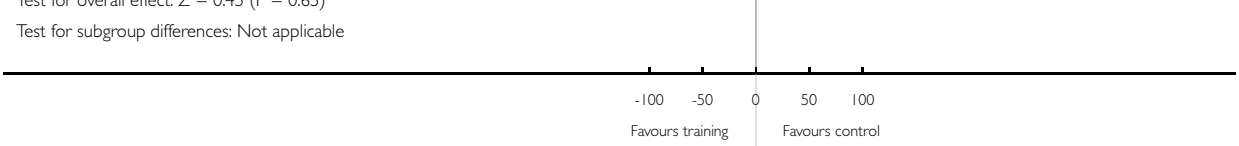
Analysis 4.6. Comparison 4 Resistance training versus control - end of retention follow-up, Outcome 6 Physical function - Timed Up and Go (sec).

Review: Physical fitness training for stroke patients

Comparison: 4 Resistance training versus control - end of retention follow-up

Outcome: 6 Physical function - Timed Up and Go (sec)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Flansbjer 2008	15	23.6 (11.1)	9	26.7 (18.9)		100.0 %	-3.10 [-16.67, 10.47]
Subtotal (95% CI)	**15**		**9**			**100.0 %**	**-3.10 [-16.67, 10.47]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.45 (P = 0.65)							
Total (95% CI)	**15**		**9**			**100.0 %**	**-3.10 [-16.67, 10.47]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.45 (P = 0.65)							
Test for subgroup differences: Not applicable							



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Analysis 4.7. Comparison 4 Resistance training versus control - end of retention follow-up, Outcome 7 Mood - Centre for Epidemiologic Studies for Depression scale (CES-D).

Review: Physical fitness training for stroke patients

Comparison: 4 Resistance training versus control - end of retention follow-up

Outcome: 7 Mood - Centre for Epidemiologic Studies for Depression scale (CES-D)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Sims 2009	43	13.78 (8.02)	43	22.7 (11.17)		100.0 %	-8.92 [-13.03, -4.81]
Subtotal (95% CI)	**43**		**43**			**100.0 %**	**-8.92 [-13.03, -4.81]**
Heterogeneity: not applicable							
Test for overall effect: Z = 4.25 (P = 0.000021)							
Total (95% CI)	**43**		**43**			**100.0 %**	**-8.92 [-13.03, -4.81]**
Heterogeneity: not applicable							
Test for overall effect: Z = 4.25 (P = 0.000021)							
Test for subgroup differences: Not applicable							

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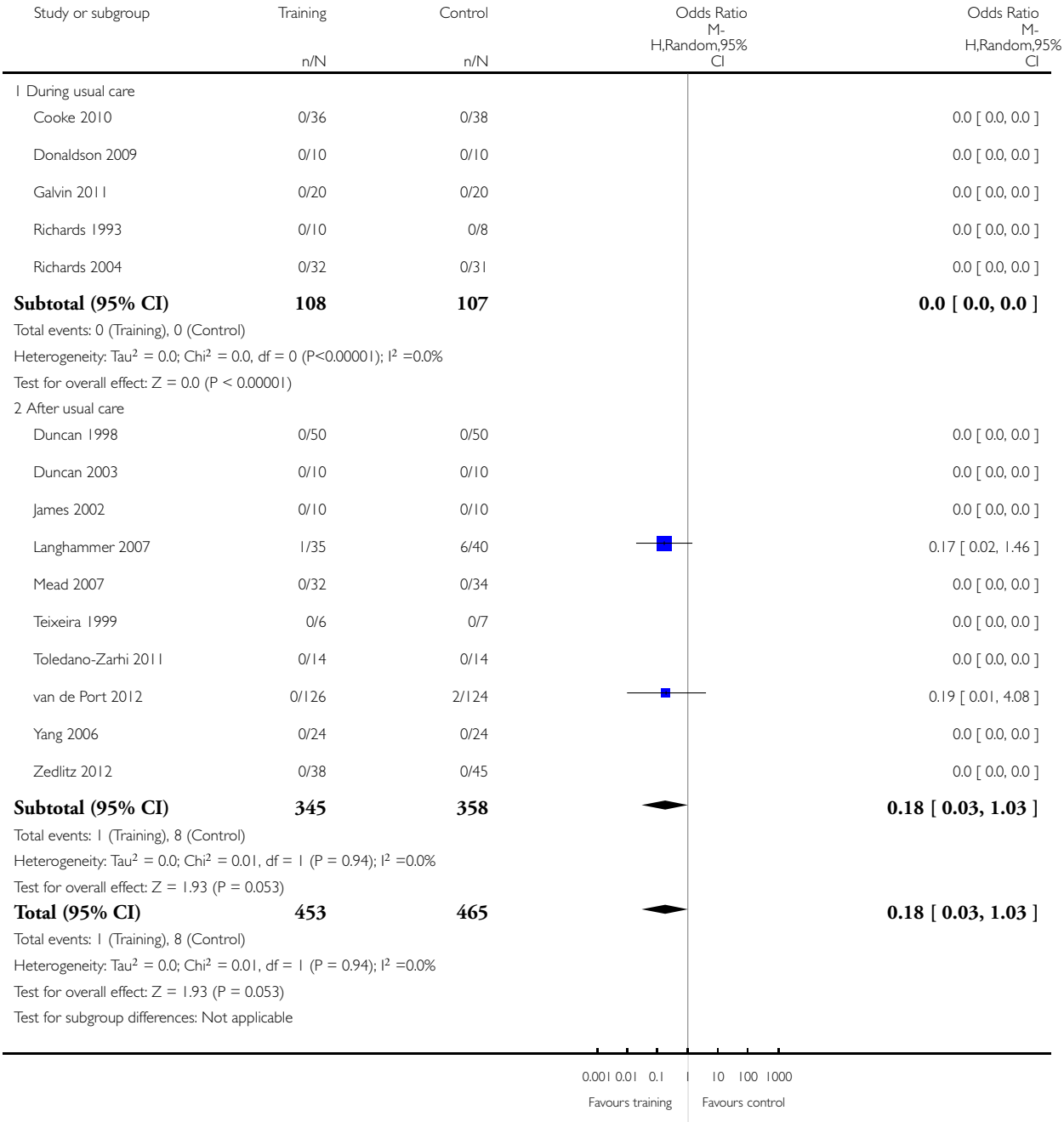
Analysis 5.1. Comparison 5 Mixed training versus control - end of intervention, Outcome 1 Case fatality.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 1 Case fatality



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Analysis 5.2. Comparison 5 Mixed training versus control - end of intervention, Outcome 2 Disability - Lawton IADL.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 2 Disability - Lawton IADL

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 1998	10	22 (4.24)	10	22.2 (3.82)		14.3 %	-0.20 [-3.74, 3.34]
Duncan 2003	44	22.8 (3.2)	49	21.8 (3.9)		85.7 %	1.00 [-0.44, 2.44]
Subtotal (95% CI)	**54**		**59**			**100.0 %**	**0.83 [-0.51, 2.17]**
Heterogeneity: Tau^2 = 0.0; Chi^2 = 0.38, df = 1 (P = 0.54); I^2 =0.0%							
Test for overall effect: Z = 1.21 (P = 0.22)							
Total (95% CI)	**54**		**59**			**100.0 %**	**0.83 [-0.51, 2.17]**
Heterogeneity: Tau^2 = 0.0; Chi^2 = 0.38, df = 1 (P = 0.54); I^2 =0.0%							
Test for overall effect: Z = 1.21 (P = 0.22)							
Test for subgroup differences: Not applicable							

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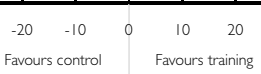
Analysis 5.3. Comparison 5 Mixed training versus control - end of intervention, Outcome 3 Disability - Barthel Index (BI).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 3 Disability - Barthel Index (BI)

Study or subgroup	Training N	Mean(SD)[0 to 100]	Control N	Mean(SD)[0 to 100]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Galvin 2011	20	88.5 (15.6)	20	81.8 (18.7)		10.0 %	6.70 [-3.97, 17.37]
Subtotal (95% CI)	**20**		**20**			**10.0 %**	**6.70 [-3.97, 17.37]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.23 (P = 0.22)							
2 After usual care							
Duncan 1998	10	96 (5.16)	10	95.56 (5.27)		35.4 %	0.44 [-4.13, 5.01]
Duncan 2003	44	94.4 (6.7)	49	89.6 (10.4)		46.1 %	4.80 [1.28, 8.32]
Langhammer 2007	32	82.96 (26.4)	33	87.6 (21.5)		8.5 %	-4.64 [-16.37, 7.09]
Subtotal (95% CI)	**86**		**92**			**90.0 %**	**1.99 [-2.32, 6.29]**
Heterogeneity: Tau^2 = 6.67; Chi^2 = 3.81, df = 2 (P = 0.15); I^2 =47%							
Test for overall effect: Z = 0.91 (P = 0.37)							
Total (95% CI)	**106**		**112**			**100.0 %**	**2.65 [-0.95, 6.25]**
Heterogeneity: Tau^2 = 4.09; Chi^2 = 4.30, df = 3 (P = 0.23); I^2 =30%							
Test for overall effect: Z = 1.44 (P = 0.15)							
Test for subgroup differences: Chi^2 = 0.64, df = 1 (P = 0.42), I^2 =0.0%							



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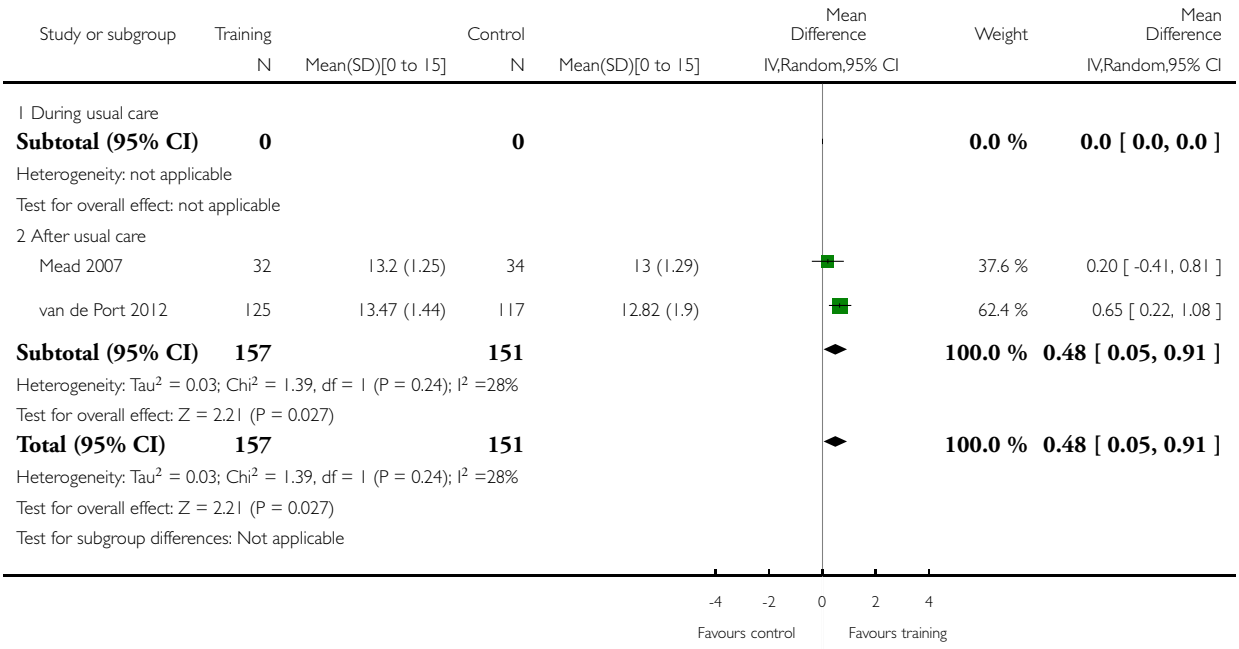
Analysis 5.4. Comparison 5 Mixed training versus control - end of intervention, Outcome 4 Disability - Rivermead Mobility Index (RMI).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 4 Disability - Rivermead Mobility Index (RMI)

Study or subgroup	Training N	Mean(SD)[0 to 15]	Control N	Mean(SD)[0 to 15]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mead 2007	32	13.2 (1.25)	34	13 (1.29)		37.6 %	0.20 [-0.41, 0.81]
van de Port 2012	125	13.47 (1.44)	117	12.82 (1.9)		62.4 %	0.65 [0.22, 1.08]
Subtotal (95% CI)	**157**		**151**			**100.0 %**	**0.48 [0.05, 0.91]**
Heterogeneity: $Tau^2 = 0.03$; $Chi^2 = 1.39$, df = 1 (P = 0.24); $I^2 = 28\%$							
Test for overall effect: Z = 2.21 (P = 0.027)							
Total (95% CI)	**157**		**151**			**100.0 %**	**0.48 [0.05, 0.91]**
Heterogeneity: $Tau^2 = 0.03$; $Chi^2 = 1.39$, df = 1 (P = 0.24); $I^2 = 28\%$							
Test for overall effect: Z = 2.21 (P = 0.027)							
Test for subgroup differences: Not applicable							



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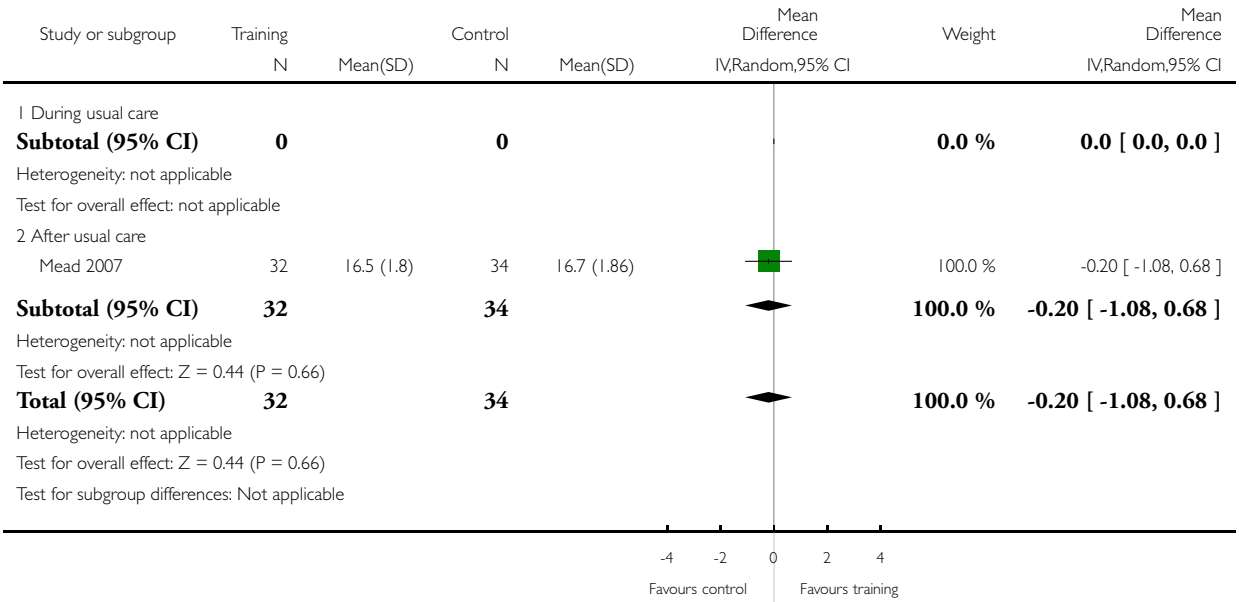
Analysis 5.5. Comparison 5 Mixed training versus control - end of intervention, Outcome 5 Disability - Nottingham Extended ADL.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 5 Disability - Nottingham Extended ADL

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mead 2007	32	16.5 (1.8)	34	16.7 (1.86)		100.0 %	-0.20 [-1.08, 0.68]
Subtotal (95% CI)	**32**		**34**			**100.0 %**	**-0.20 [-1.08, 0.68]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.44 (P = 0.66)							
Total (95% CI)	**32**		**34**			**100.0 %**	**-0.20 [-1.08, 0.68]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.44 (P = 0.66)							
Test for subgroup differences: Not applicable							



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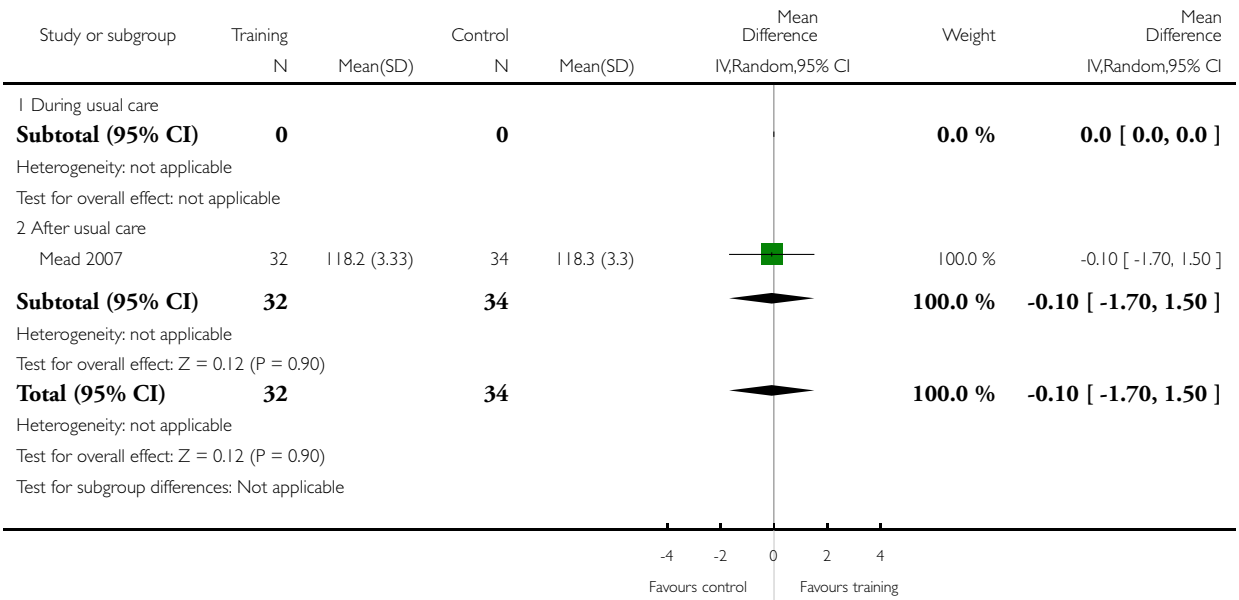
Analysis 5.6. Comparison 5 Mixed training versus control - end of intervention, Outcome 6 Disability - Functional Independence Measure (FIM).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 6 Disability - Functional Independence Measure (FIM)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mead 2007	32	118.2 (3.33)	34	118.3 (3.3)		100.0 %	-0.10 [-1.70, 1.50]
Subtotal (95% CI)	**32**		**34**			**100.0 %**	**-0.10 [-1.70, 1.50]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.12 (P = 0.90)							
Total (95% CI)	**32**		**34**			**100.0 %**	**-0.10 [-1.70, 1.50]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.12 (P = 0.90)							
Test for subgroup differences: Not applicable							



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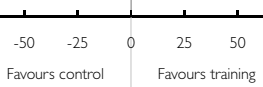
Analysis 5.7. Comparison 5 Mixed training versus control - end of intervention, Outcome 7 Disability - Stroke Impact Scale (SIS-16).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 7 Disability - Stroke Impact Scale (SIS-16)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 2003	44	81.3 (14.2)	50	75.3 (14.5)		100.0 %	6.00 [0.19, 11.81]
Subtotal (95% CI)	**44**		**50**			**100.0 %**	**6.00 [0.19, 11.81]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.02 (P = 0.043)							
Total (95% CI)	**44**		**50**			**100.0 %**	**6.00 [0.19, 11.81]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.02 (P = 0.043)							
Test for subgroup differences: Not applicable							



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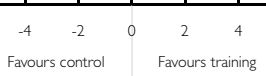
Analysis 5.8. Comparison 5 Mixed training versus control - end of intervention, Outcome 8 Disability - Combined disability scales.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 8 Disability - Combined disability scales

Study or subgroup	Training N	Mean(SD)[0 to 100]	Control N	Mean(SD)[0 to 100]	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Galvin 2011	20	88.5 (15.6)	20	81.8 (18.7)		10.9 %	0.38 [-0.24, 1.01]
Subtotal (95% CI)	**20**		**20**			**10.9 %**	**0.38 [-0.24, 1.01]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.19 (P = 0.23)							
2 After usual care							
Duncan 1998	10	96 (5.16)	10	95.56 (5.27)		6.2 %	0.08 [-0.80, 0.96]
Duncan 2003	44	94.4 (6.7)	49	89.6 (10.4)		19.5 %	0.54 [0.12, 0.95]
Langhammer 2007	32	82.96 (26.4)	33	87.6 (21.5)		15.8 %	-0.19 [-0.68, 0.30]
Mead 2007	32	118.2 (3.33)	34	118.3 (3.3)		16.0 %	-0.03 [-0.51, 0.45]
van de Port 2012	125	13.47 (1.44)	117	12.82 (1.9)		31.6 %	0.39 [0.13, 0.64]
Subtotal (95% CI)	**243**		**243**			**89.1 %**	**0.21 [-0.06, 0.48]**
Heterogeneity: Tau^2 = 0.04; Chi^2 = 7.50, df = 4 (P = 0.11); I^2 =47%							
Test for overall effect: Z = 1.50 (P = 0.13)							
Total (95% CI)	**263**		**263**			**100.0 %**	**0.24 [0.00, 0.47]**
Heterogeneity: Tau^2 = 0.03; Chi^2 = 7.62, df = 5 (P = 0.18); I^2 =34%							
Test for overall effect: Z = 2.00 (P = 0.045)							
Test for subgroup differences: Chi^2 = 0.24, df = 1 (P = 0.62), I^2 =0.0%							



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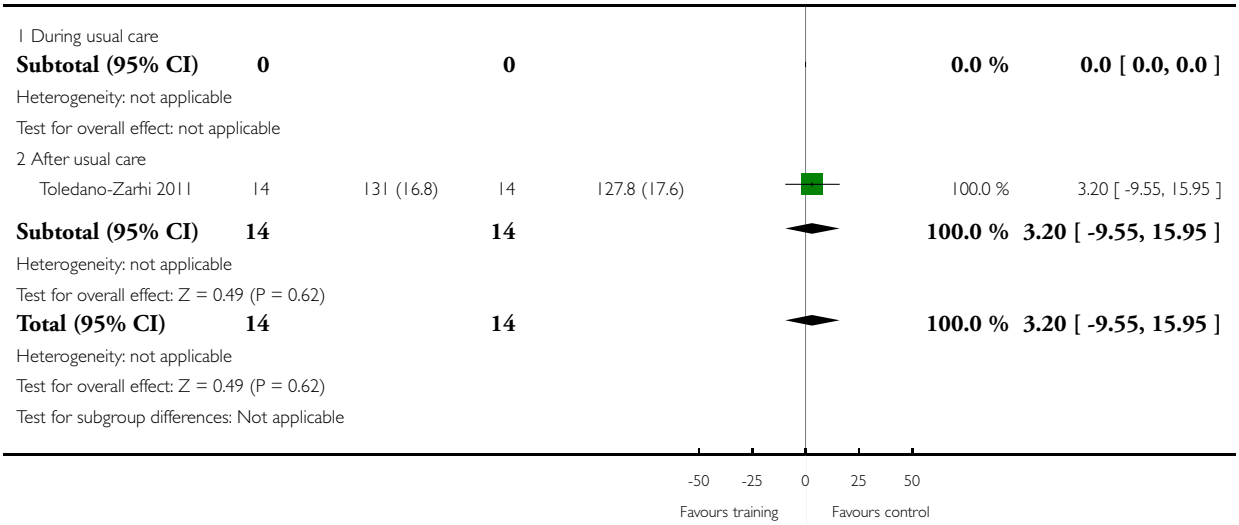
Analysis 5.9. Comparison 5 Mixed training versus control - end of intervention, Outcome 9 Risk factors - blood pressure, systolic.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 9 Risk factors - blood pressure, systolic

Study or subgroup	Training N	Mean(SD)[mmHg]	Control N	Mean(SD)[mmHg]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Toledano-Zarhi 2011	14	131 (16.8)	14	127.8 (17.6)		100.0 %	3.20 [-9.55, 15.95]
Subtotal (95% CI)	**14**		**14**			**100.0 %**	**3.20 [-9.55, 15.95]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.49 (P = 0.62)							
Total (95% CI)	**14**		**14**			**100.0 %**	**3.20 [-9.55, 15.95]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.49 (P = 0.62)							
Test for subgroup differences: Not applicable							



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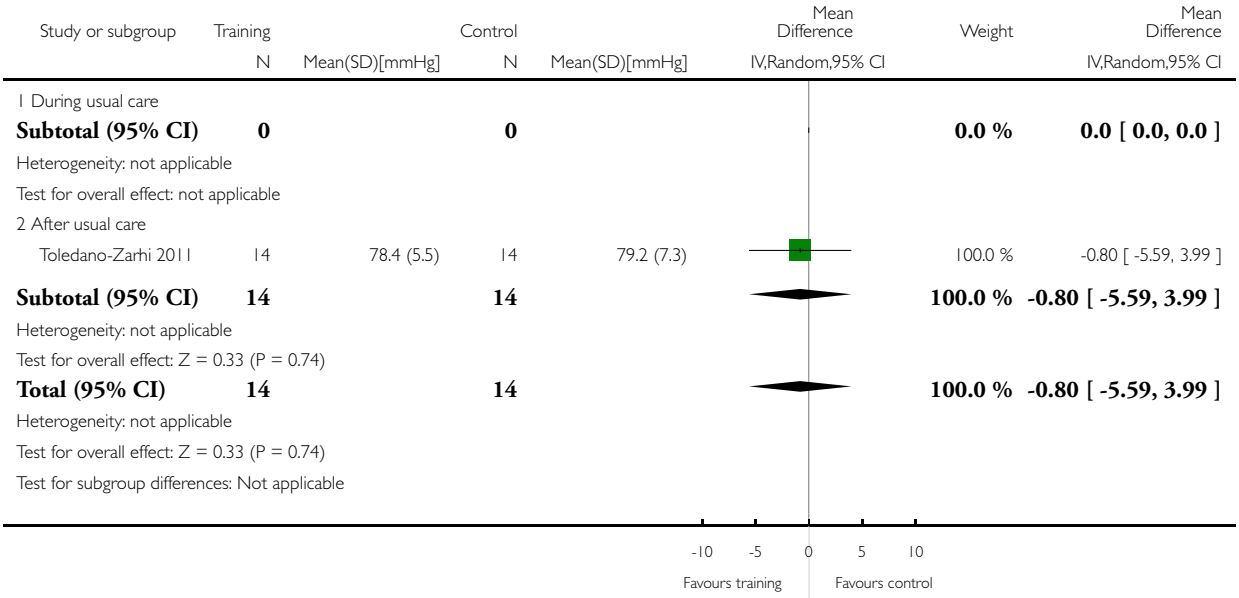
Analysis 5.10. Comparison 5 Mixed training versus control - end of intervention, Outcome 10 Risk factors - blood pressure, diastolic.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 10 Risk factors - blood pressure, diastolic

Study or subgroup	Training N	Mean(SD)[mmHg]	Control N	Mean(SD)[mmHg]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Toledano-Zarhi 2011	14	78.4 (5.5)	14	79.2 (7.3)		100.0 %	-0.80 [-5.59, 3.99]
Subtotal (95% CI)	**14**		**14**			**100.0 %**	**-0.80 [-5.59, 3.99]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.33 (P = 0.74)							
Total (95% CI)	**14**		**14**			**100.0 %**	**-0.80 [-5.59, 3.99]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.33 (P = 0.74)							
Test for subgroup differences: Not applicable							



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Analysis 5.11. Comparison 5 Mixed training versus control - end of intervention, Outcome 11 Physical fitness - peak VO2 (ml/kg/min).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 11 Physical fitness - peak VO2 (ml/kg/min)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 2003	50	1.05 (1.63)	50	0.06 (1.63)		100.0 %	0.99 [0.35, 1.63]
Subtotal (95% CI)	**50**		**50**			**100.0 %**	**0.99 [0.35, 1.63]**
Heterogeneity: not applicable							
Test for overall effect: Z = 3.04 (P = 0.0024)							
Total (95% CI)	**50**		**50**			**100.0 %**	**0.99 [0.35, 1.63]**
Heterogeneity: not applicable							
Test for overall effect: Z = 3.04 (P = 0.0024)							
Test for subgroup differences: Not applicable							

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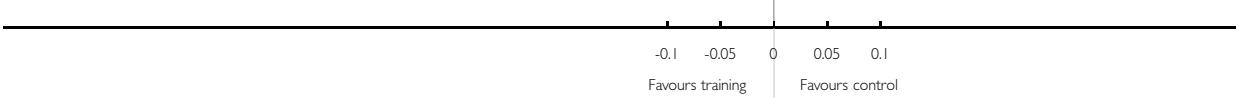
Analysis 5.12. Comparison 5 Mixed training versus control - end of intervention, Outcome 12 Physical fitness - gait economy, VO2 (ml/kg/metre).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 12 Physical fitness - gait economy, VO2 (ml/kg/metre)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mead 2007	32	0.112 (0.02)	34	0.13 (0.03)		100.0 %	-0.01 [-0.03, 0.00]
Subtotal (95% CI)	**32**		**34**			**100.0 %**	**-0.01 [-0.03, 0.00]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.24 (P = 0.025)							
Total (95% CI)	**32**		**34**			**100.0 %**	**-0.01 [-0.03, 0.00]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.24 (P = 0.025)							
Test for subgroup differences: Not applicable							



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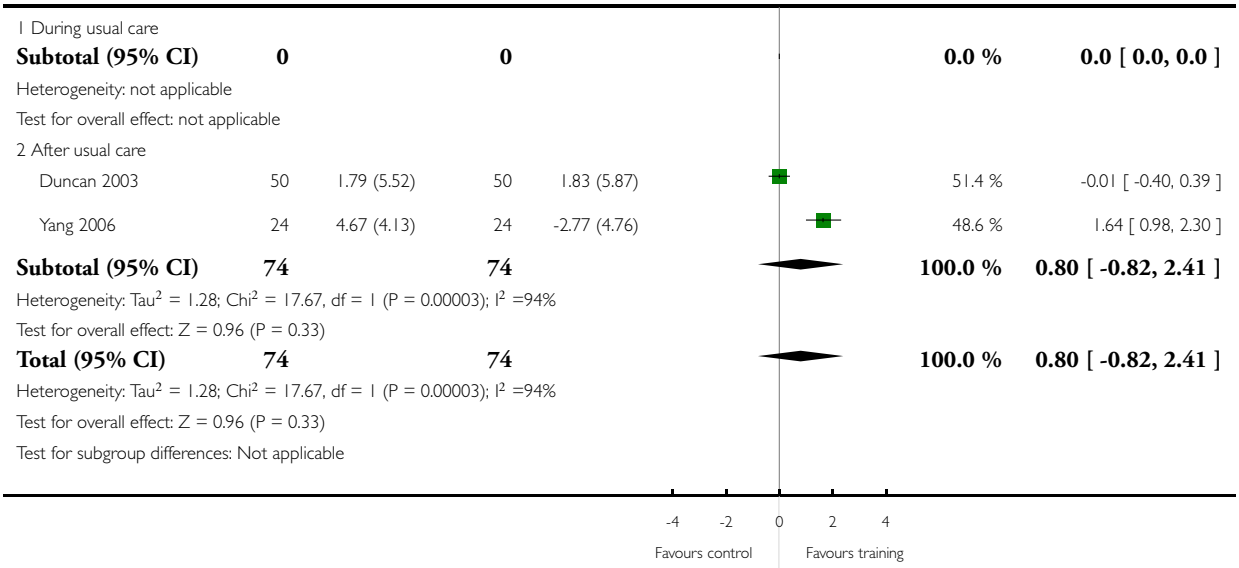
Analysis 5.13. Comparison 5 Mixed training versus control - end of intervention, Outcome 13 Physical fitness - muscle strength, ankle dorsiflexion*.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 13 Physical fitness - muscle strength, ankle dorsiflexion*

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 2003	50	1.79 (5.52)	50	1.83 (5.87)		51.4 %	-0.01 [-0.40, 0.39]
Yang 2006	24	4.67 (4.13)	24	-2.77 (4.76)		48.6 %	1.64 [0.98, 2.30]
Subtotal (95% CI)	**74**		**74**			**100.0 %**	**0.80 [-0.82, 2.41]**
Heterogeneity: Tau^2 = 1.28; Chi^2 = 17.67, df = 1 (P = 0.00003); I^2 =94%							
Test for overall effect: Z = 0.96 (P = 0.33)							
Total (95% CI)	**74**		**74**			**100.0 %**	**0.80 [-0.82, 2.41]**
Heterogeneity: Tau^2 = 1.28; Chi^2 = 17.67, df = 1 (P = 0.00003); I^2 =94%							
Test for overall effect: Z = 0.96 (P = 0.33)							
Test for subgroup differences: Not applicable							



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Analysis 5.14. Comparison 5 Mixed training versus control - end of intervention, Outcome 14 Physical fitness - muscle strength, knee extension*.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 14 Physical fitness - muscle strength, knee extension*

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Cooke 2010	29	35.9 (28.5)	25	27.8 (26.3)		26.8 %	0.29 [-0.25, 0.83]
Subtotal (95% CI)	**29**		**25**			**26.8 %**	**0.29 [-0.25, 0.83]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.06 (P = 0.29)							
2 After usual care							
Duncan 2003	50	7.71 (16.4)	50	4.12 (16.8)		50.2 %	0.21 [-0.18, 0.61]
Yang 2006 (1)	24	4.49 (5.44)	24	1.09 (5.44)		23.0 %	0.61 [0.03, 1.19]
Subtotal (95% CI)	**74**		**74**			**73.2 %**	**0.36 [-0.02, 0.73]**
Heterogeneity: Tau^2 = 0.02; Chi^2 = 1.25, df = 1 (P = 0.26); I^2 =20%							
Test for overall effect: Z = 1.86 (P = 0.063)							
Total (95% CI)	**103**		**99**			**100.0 %**	**0.33 [0.05, 0.61]**
Heterogeneity: Tau^2 = 0.0; Chi^2 = 1.28, df = 2 (P = 0.53); I^2 =0.0%							
Test for overall effect: Z = 2.30 (P = 0.021)							
Test for subgroup differences: Chi^2 = 0.04, df = 1 (P = 0.85), I^2 =0.0%							

(1) Yang 2006 results are shown as change-from-baseline scores

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Analysis 5.15. Comparison 5 Mixed training versus control - end of intervention, Outcome 15 Physical fitness - muscle strength, knee flexion.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 15 Physical fitness - muscle strength, knee flexion

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Cooke 2010	29	25.4 (20.3)	25	19 (17.8)		100.0 %	6.40 [-3.76, 16.56]
Subtotal (95% CI)	**29**		**25**			**100.0 %**	**6.40 [-3.76, 16.56]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.23 (P = 0.22)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**29**		**25**			**100.0 %**	**6.40 [-3.76, 16.56]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.23 (P = 0.22)							
Test for subgroup differences: Not applicable							

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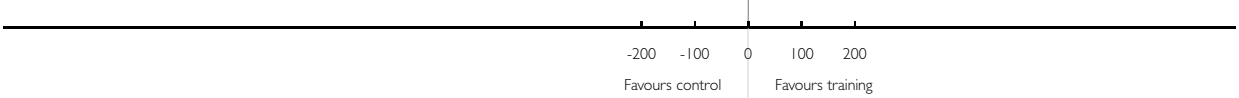
Analysis 5.16. Comparison 5 Mixed training versus control - end of intervention, Outcome 16 Physical fitness - muscle strength, elbow extension force (N).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 16 Physical fitness - muscle strength, elbow extension force (N)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Donaldson 2009	10	49.2 (34.19)	8	68.63 (39.61)		100.0 %	-19.43 [-54.11, 15.25]
Subtotal (95% CI)	**10**		**8**			**100.0 %**	**-19.43 [-54.11, 15.25]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.10 (P = 0.27)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**10**		**8**			**100.0 %**	**-19.43 [-54.11, 15.25]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.10 (P = 0.27)							
Test for subgroup differences: Not applicable							



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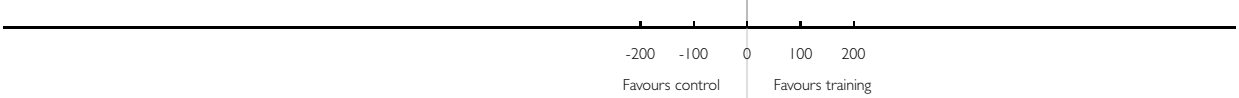
Analysis 5.17. Comparison 5 Mixed training versus control - end of intervention, Outcome 17 Physical fitness - muscle strength, elbow flexion force (N).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 17 Physical fitness - muscle strength, elbow flexion force (N)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Donaldson 2009	10	59.5 (44.69)	8	75 (38.67)		100.0 %	-15.50 [-54.04, 23.04]
Subtotal (95% CI)	**10**		**8**			**100.0 %**	**-15.50 [-54.04, 23.04]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.79 (P = 0.43)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**10**		**8**			**100.0 %**	**-15.50 [-54.04, 23.04]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.79 (P = 0.43)							
Test for subgroup differences: Not applicable							



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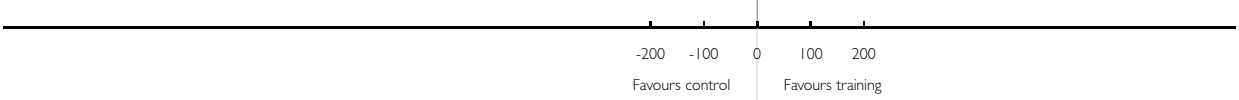
Analysis 5.18. Comparison 5 Mixed training versus control - end of intervention, Outcome 18 Physical fitness - muscle strength, grip force (N).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 18 Physical fitness - muscle strength, grip force (N)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Donaldson 2009	10	58.5 (60.18)	8	64.75 (39.25)		100.0 %	-6.25 [-52.41, 39.91]
Subtotal (95% CI)	**10**		**8**			**100.0 %**	**-6.25 [-52.41, 39.91]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.27 (P = 0.79)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**10**		**8**			**100.0 %**	**-6.25 [-52.41, 39.91]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.27 (P = 0.79)							
Test for subgroup differences: Not applicable							



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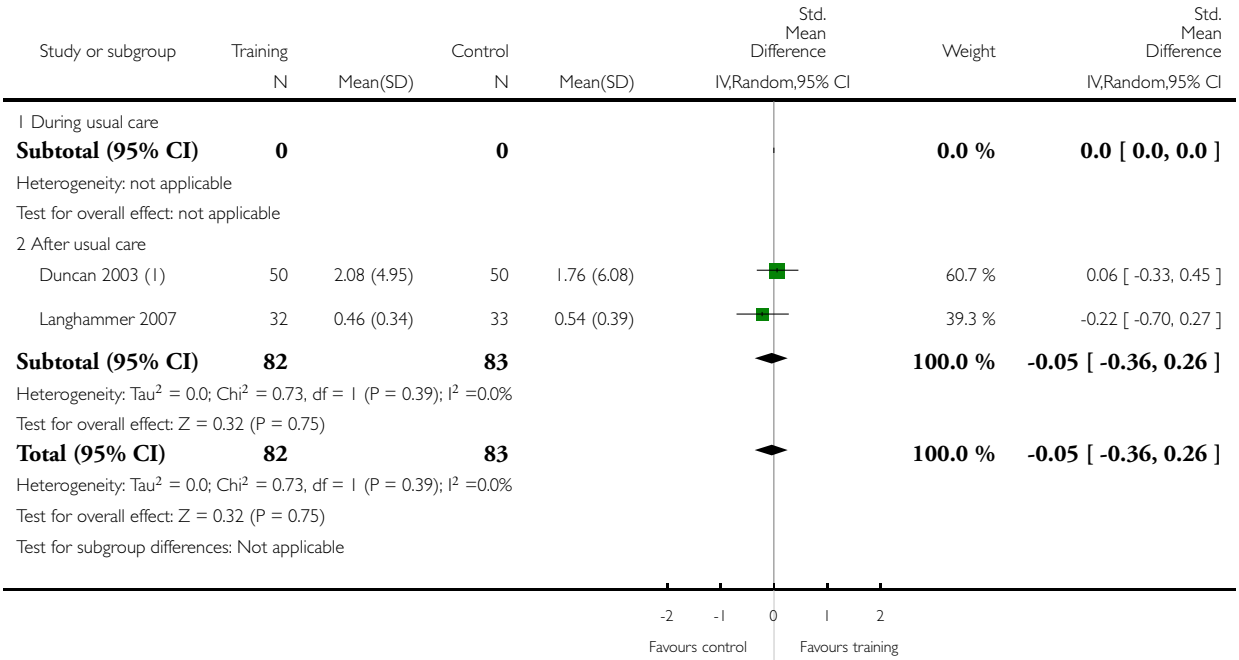
Analysis 5.19. Comparison 5 Mixed training versus control - end of intervention, Outcome 19 Physical fitness - muscle strength, grip strength (paretic hand).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 19 Physical fitness - muscle strength, grip strength (paretic hand)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 2003 (1)	50	2.08 (4.95)	50	1.76 (6.08)		60.7 %	0.06 [-0.33, 0.45]
Langhammer 2007	32	0.46 (0.34)	33	0.54 (0.39)		39.3 %	-0.22 [-0.70, 0.27]
Subtotal (95% CI)	**82**		**83**			**100.0 %**	**-0.05 [-0.36, 0.26]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.73$, df = 1 (P = 0.39); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.32 (P = 0.75)							
Total (95% CI)	**82**		**83**			**100.0 %**	**-0.05 [-0.36, 0.26]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.73$, df = 1 (P = 0.39); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.32 (P = 0.75)							
Test for subgroup differences: Not applicable							



(1) Results are presented as mean change scores

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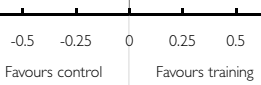
Analysis 5.20. Comparison 5 Mixed training versus control - end of intervention, Outcome 20 Physical fitness - muscle strength, leg extensor power (affected leg) W/Kg.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 20 Physical fitness - muscle strength, leg extensor power (affected leg) W/Kg

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mead 2007	32	1.11 (0.31)	34	1.04 (0.29)		100.0 %	0.07 [-0.08, 0.22]
Subtotal (95% CI)	**32**		**34**			**100.0 %**	**0.07 [-0.08, 0.22]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.95 (P = 0.34)							
Total (95% CI)	**32**		**34**			**100.0 %**	**0.07 [-0.08, 0.22]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.95 (P = 0.34)							
Test for subgroup differences: Not applicable							



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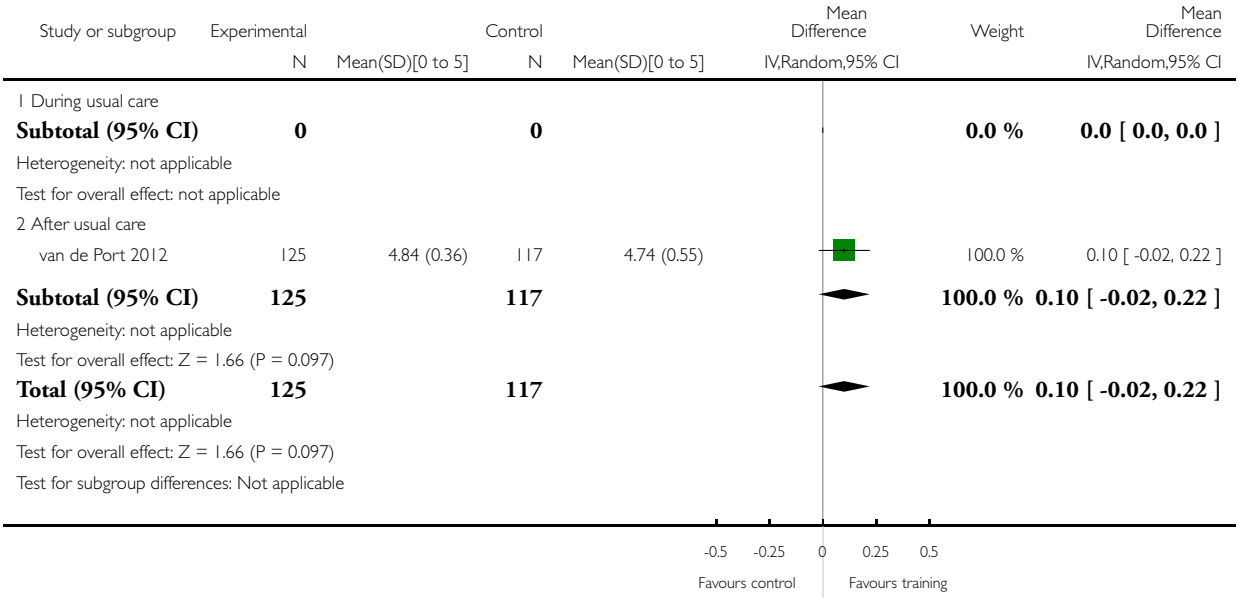
Analysis 5.21. Comparison 5 Mixed training versus control - end of intervention, Outcome 21 Mobility - Functional Ambulation Categories.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 21 Mobility - Functional Ambulation Categories

Study or subgroup	Experimental N	Mean(SD)[0 to 5]	Control N	Mean(SD)[0 to 5]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
van de Port 2012	125	4.84 (0.36)	117	4.74 (0.55)		100.0 %	0.10 [-0.02, 0.22]
Subtotal (95% CI)	**125**		**117**			**100.0 %**	**0.10 [-0.02, 0.22]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.66 (P = 0.097)							
Total (95% CI)	**125**		**117**			**100.0 %**	**0.10 [-0.02, 0.22]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.66 (P = 0.097)							
Test for subgroup differences: Not applicable							



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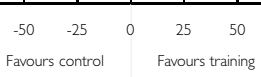
Analysis 5.22. Comparison 5 Mixed training versus control - end of intervention, Outcome 22 Mobility - preferred gait speed (m/min).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 22 Mobility - preferred gait speed (m/min)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Cooke 2010	36	25.2 (23.4)	38	18 (21)		7.5 %	7.20 [-2.95, 17.35]
Richards 1993	9	18.78 (11.88)	8	13.5 (8.76)		7.7 %	5.28 [-4.57, 15.13]
Richards 2004	31	33 (21)	31	36 (21.6)		7.1 %	-3.00 [-13.60, 7.60]
Subtotal (95% CI)	**76**		**77**			**22.2 %**	**3.37 [-2.63, 9.37]**
Heterogeneity: $Tau^2 = 1.05$; $Chi^2 = 2.08$, df = 2 (P = 0.35); $I^2 = 4\%$							
Test for overall effect: Z = 1.10 (P = 0.27)							
2 After usual care							
Duncan 2003	50	10.8 (12.6)	50	6.6 (8.4)		14.7 %	4.20 [0.00, 8.40]
James 2002	10	12 (1.68)	8	12 (1.68)		17.8 %	0.0 [-1.56, 1.56]
Mead 2007	32	44.1 (6.3)	33	44.1 (6.42)		16.2 %	0.0 [-3.09, 3.09]
Teixeira 1999	6	61.8 (24)	7	46.8 (22.2)		1.8 %	15.00 [-10.28, 40.28]
van de Port 2012	125	66 (18)	117	53.4 (21.6)		13.5 %	12.60 [7.57, 17.63]
Yang 2006	24	55.5 (8.1)	24	46.62 (9.24)		13.7 %	8.88 [3.96, 13.80]
Subtotal (95% CI)	**247**		**239**			**77.8 %**	**4.97 [0.68, 9.26]**
Heterogeneity: $Tau^2 = 20.67$; $Chi^2 = 34.39$, df = 5 (P<0.00001); $I^2 = 85\%$							
Test for overall effect: Z = 2.27 (P = 0.023)							
Total (95% CI)	**323**		**316**			**100.0 %**	**4.54 [0.95, 8.14]**
Heterogeneity: $Tau^2 = 18.23$; $Chi^2 = 36.76$, df = 8 (P = 0.00001); $I^2 = 78\%$							
Test for overall effect: Z = 2.48 (P = 0.013)							
Test for subgroup differences: $Chi^2 = 0.18$, df = 1 (P = 0.67), $I^2 = 0.0\%$							



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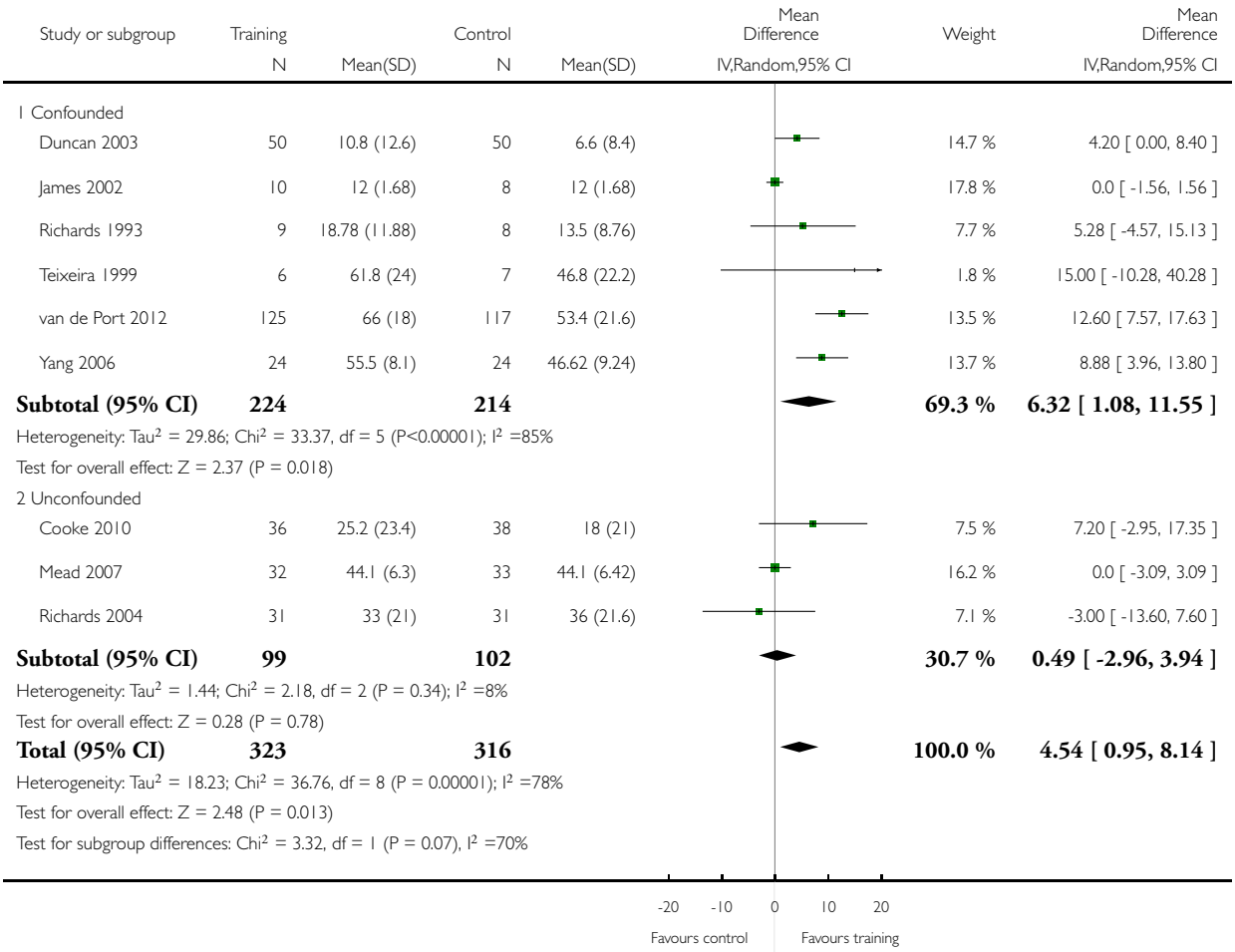
Analysis 5.23. Comparison 5 Mixed training versus control - end of intervention, Outcome 23 Mobility - preferred gait speed (m/min); subgroup: therapy time.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 23 Mobility - preferred gait speed (m/min); subgroup: therapy time



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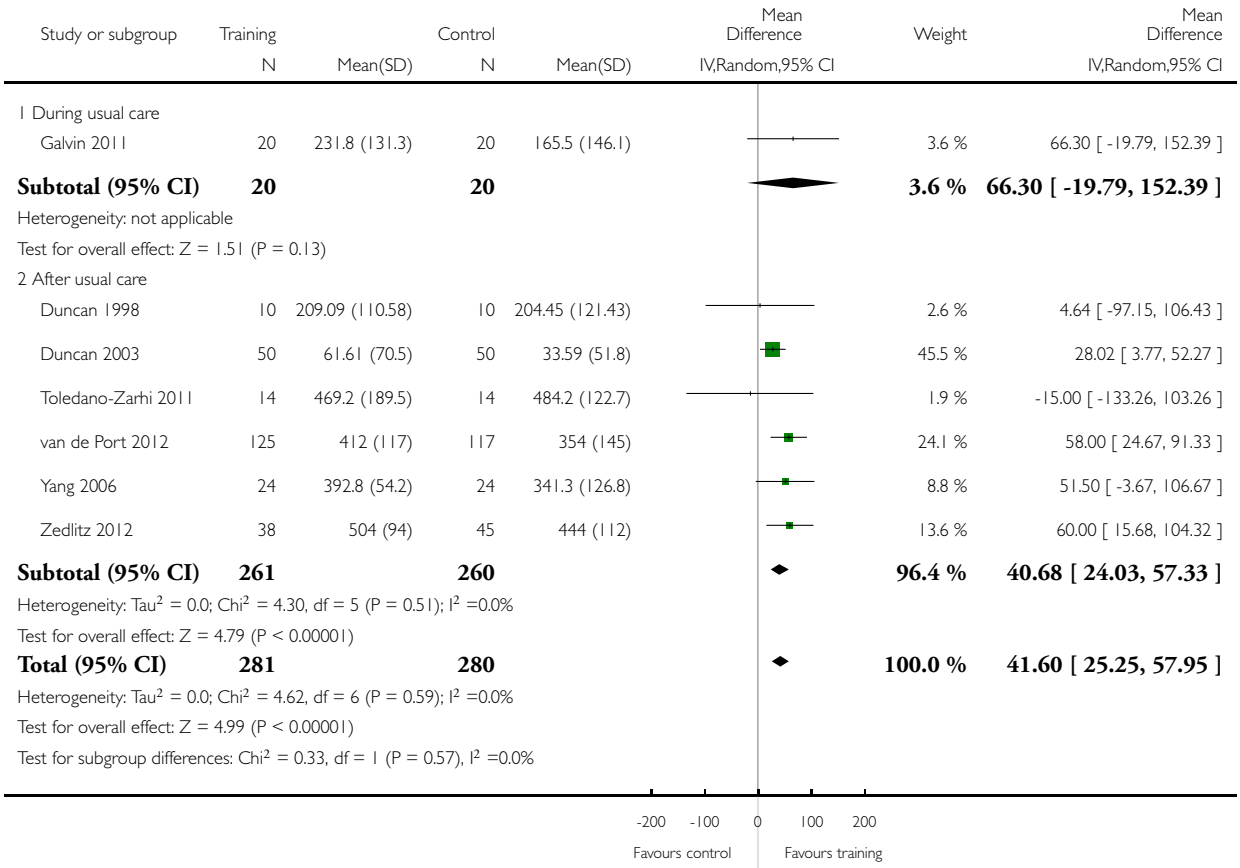
Analysis 5.24. Comparison 5 Mixed training versus control - end of intervention, Outcome 24 Mobility - gait endurance (6 MWT metres).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 24 Mobility - gait endurance (6 MWT metres)



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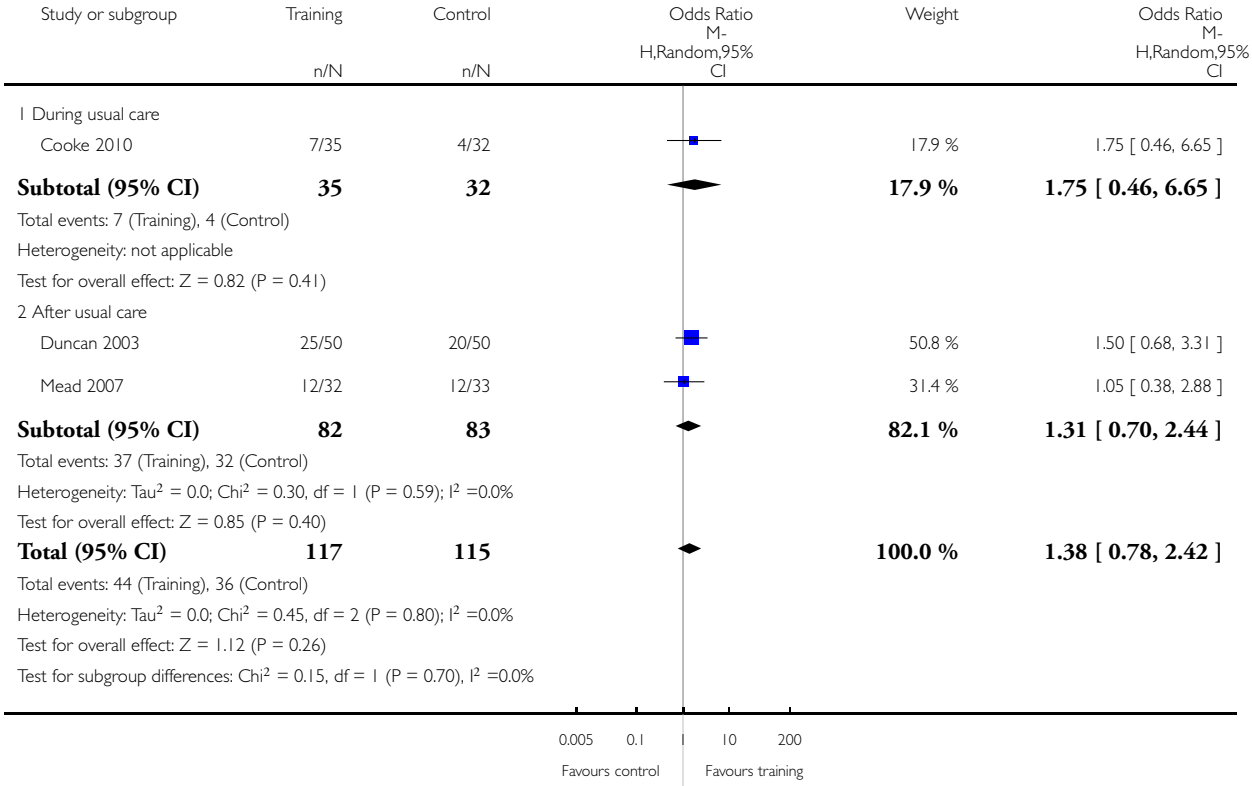
Analysis 5.25. Comparison 5 Mixed training versus control - end of intervention, Outcome 25 Mobility - Community Ambulation Speed (> 0.8 m/sec).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 25 Mobility - Community Ambulation Speed (> 0.8 m/sec)



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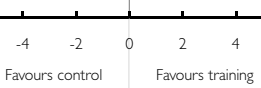
Analysis 5.26. Comparison 5 Mixed training versus control - end of intervention, Outcome 26 Physical function - Balance - Berg Balance scale.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 26 Physical function - Balance - Berg Balance scale

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Galvin 2011	20	45.1 (14.9)	20	35.8 (17.2)		19.0 %	0.57 [-0.07, 1.20]
Richards 1993	9	33.2 (18.2)	8	28.4 (19.7)		9.8 %	0.24 [-0.72, 1.20]
Richards 2004	31	46 (7)	31	47 (8)		26.2 %	-0.13 [-0.63, 0.37]
Subtotal (95% CI)	**60**		**59**			**55.1 %**	**0.18 [-0.28, 0.64]**
Heterogeneity: $Tau^2 = 0.05$; $Chi^2 = 2.92$, df = 2 (P = 0.23); $I^2 = 31\%$							
Test for overall effect: Z = 0.77 (P = 0.44)							
2 After usual care							
Duncan 1998	10	46.9 (3.63)	10	45.8 (5.39)		11.3 %	0.23 [-0.65, 1.11]
Duncan 2003	50	4.36 (5.02)	50	1.7 (3.68)		33.6 %	0.60 [0.20, 1.00]
Subtotal (95% CI)	**60**		**60**			**44.9 %**	**0.54 [0.17, 0.90]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.56$, df = 1 (P = 0.45); $I^2 = 0.0\%$							
Test for overall effect: Z = 2.88 (P = 0.0040)							
Total (95% CI)	**120**		**119**			**100.0 %**	**0.32 [0.00, 0.65]**
Heterogeneity: $Tau^2 = 0.04$; $Chi^2 = 5.64$, df = 4 (P = 0.23); $I^2 = 29\%$							
Test for overall effect: Z = 1.96 (P = 0.050)							
Test for subgroup differences: $Chi^2 = 1.41$, df = 1 (P = 0.24), $I^2 = 29\%$							



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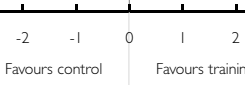
Analysis 5.27. Comparison 5 Mixed training versus control - end of intervention, Outcome 27 Physical function - Balance - Functional reach.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 27 Physical function - Balance - Functional reach

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 2003	50	0.53 (4.88)	50	0.63 (5.37)		57.7 %	-0.02 [-0.41, 0.37]
Mead 2007	32	28.8 (6.66)	34	26.3 (7.17)		42.3 %	0.36 [-0.13, 0.84]
Subtotal (95% CI)	**82**		**84**			**100.0 %**	**0.14 [-0.22, 0.50]**
Heterogeneity: $Tau^2 = 0.02$; $Chi^2 = 1.39$, df = 1 (P = 0.24); $I^2 = 28\%$							
Test for overall effect: Z = 0.75 (P = 0.45)							
Total (95% CI)	**82**		**84**			**100.0 %**	**0.14 [-0.22, 0.50]**
Heterogeneity: $Tau^2 = 0.02$; $Chi^2 = 1.39$, df = 1 (P = 0.24); $I^2 = 28\%$							
Test for overall effect: Z = 0.75 (P = 0.45)							
Test for subgroup differences: Not applicable							



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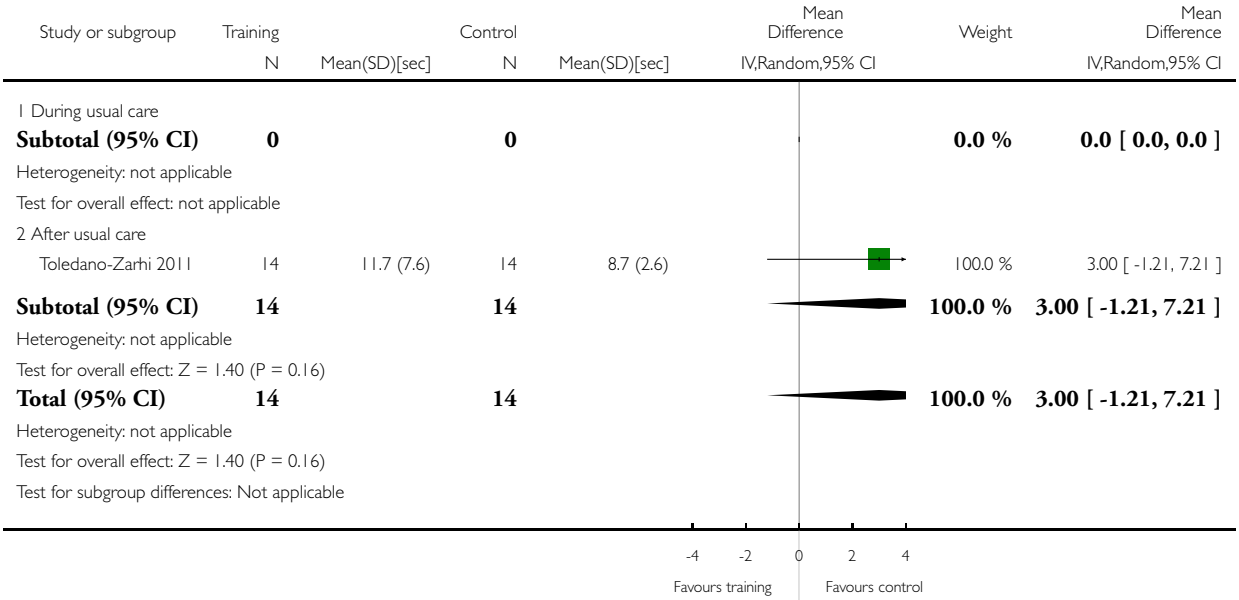
Analysis 5.28. Comparison 5 Mixed training versus control - end of intervention, Outcome 28 Physical function - Balance - Four Square Step Test.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 28 Physical function - Balance - Four Square Step Test

Study or subgroup	Training N	Mean(SD)[sec]	Control N	Mean(SD)[sec]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Toledano-Zarhi 2011	14	11.7 (7.6)	14	8.7 (2.6)		100.0 %	3.00 [-1.21, 7.21]
Subtotal (95% CI)	**14**		**14**			**100.0 %**	**3.00 [-1.21, 7.21]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.40 (P = 0.16)							
Total (95% CI)	**14**		**14**			**100.0 %**	**3.00 [-1.21, 7.21]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.40 (P = 0.16)							
Test for subgroup differences: Not applicable							



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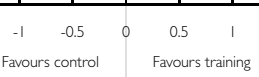
Analysis 5.29. Comparison 5 Mixed training versus control - end of intervention, Outcome 29 Physical function - Balance - Timed balance test.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 29 Physical function - Balance - Timed balance test

Study or subgroup	Training N	Mean(SD)[0 to 5]	Control N	Mean(SD)[0 to 5]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
van de Port 2012	125	4.06 (1.02)	117	3.74 (1.06)		100.0 %	0.32 [0.06, 0.58]
Subtotal (95% CI)	**125**		**117**			**100.0 %**	**0.32 [0.06, 0.58]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.39 (P = 0.017)							
Total (95% CI)	**125**		**117**			**100.0 %**	**0.32 [0.06, 0.58]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.39 (P = 0.017)							
Test for subgroup differences: Not applicable							



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Analysis 5.30. Comparison 5 Mixed training versus control - end of intervention, Outcome 30 Physical function - Balance - combined outcome data.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 30 Physical function - Balance - combined outcome data

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Galvin 2011 (1)	20	45.1 (14.9)	20	35.8 (17.2)		9.6 %	0.57 [-0.07, 1.20]
Richards 1993 (2)	9	33.2 (18.2)	8	28.4 (19.7)		4.8 %	0.24 [-0.72, 1.20]
Richards 2004 (3)	31	46 (7)	31	47 (8)		13.6 %	-0.13 [-0.63, 0.37]
Subtotal (95% CI)	**60**		**59**			**27.9 %**	**0.18 [-0.28, 0.64]**
Heterogeneity: $Tau^2 = 0.05$; $Chi^2 = 2.92$, df = 2 (P = 0.23); $I^2 = 31\%$							
Test for overall effect: Z = 0.77 (P = 0.44)							
2 After usual care							
Duncan 1998 (4)	10	46.9 (3.63)	10	45.8 (5.39)		5.6 %	0.23 [-0.65, 1.11]
Duncan 2003 (5)	50	4.36 (5.02)	50	1.7 (3.68)		17.9 %	0.60 [0.20, 1.00]
Mead 2007 (6)	32	28.8 (6.66)	34	26.3 (7.17)		14.0 %	0.36 [-0.13, 0.84]
Toledano-Zarhi 2011 (7)	14	-11.7 (7.6)	14	-8.7 (2.6)		7.2 %	-0.51 [-1.27, 0.24]
van de Port 2012 (8)	125	4.06 (1.02)	117	3.74 (1.06)		27.4 %	0.31 [0.05, 0.56]
Subtotal (95% CI)	**231**		**225**			**72.1 %**	**0.30 [0.02, 0.57]**
Heterogeneity: $Tau^2 = 0.04$; $Chi^2 = 6.62$, df = 4 (P = 0.16); $I^2 = 40\%$							
Test for overall effect: Z = 2.12 (P = 0.034)							
Total (95% CI)	**291**		**284**			**100.0 %**	**0.26 [0.04, 0.49]**
Heterogeneity: $Tau^2 = 0.03$; $Chi^2 = 10.23$, df = 7 (P = 0.18); $I^2 = 32\%$							
Test for overall effect: Z = 2.33 (P = 0.020)							
Test for subgroup differences: $Chi^2 = 0.18$, df = 1 (P = 0.67), $I^2 = 0.0\%$							

(1) Berg Balance scale

(2) Berg Balance scale

(3) Berg Balance scale

(4) Berg Balance scale

(5) Berg Balance scale

(6) Functional reach

(7) Four square step test (axes reversed for this timed outcome)

(8) Timed balance test

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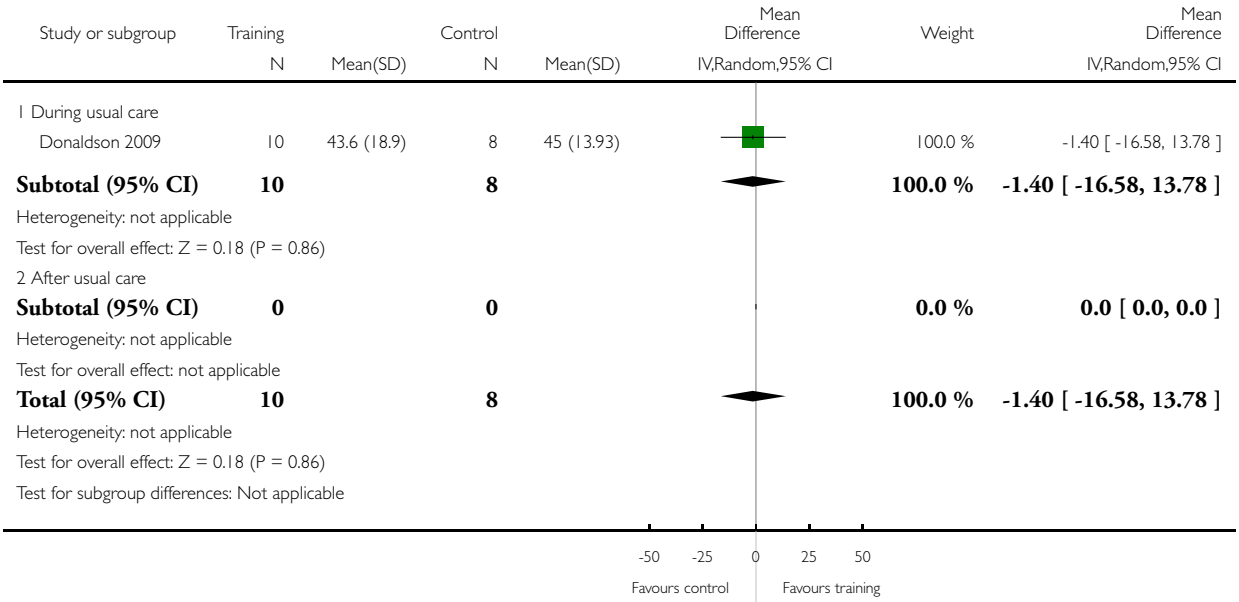
Analysis 5.31. Comparison 5 Mixed training versus control - end of intervention, Outcome 31 Physical function - Action Research Arm Test.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 31 Physical function - Action Research Arm Test

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Donaldson 2009	10	43.6 (18.9)	8	45 (13.93)		100.0 %	-1.40 [-16.58, 13.78]
Subtotal (95% CI)	**10**		**8**			**100.0 %**	**-1.40 [-16.58, 13.78]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.18 (P = 0.86)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**10**		**8**			**100.0 %**	**-1.40 [-16.58, 13.78]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.18 (P = 0.86)							
Test for subgroup differences: Not applicable							



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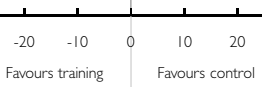
Analysis 5.32. Comparison 5 Mixed training versus control - end of intervention, Outcome 32 Physical function - Timed Up and Go (sec).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 32 Physical function - Timed Up and Go (sec)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Richards 2004	31	31 (17)	31	33 (20)		0.9 %	-2.00 [-11.24, 7.24]
Subtotal (95% CI)	**31**		**31**			**0.9 %**	**-2.00 [-11.24, 7.24]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.42 (P = 0.67)							
2 After usual care							
Mead 2007	32	10.4 (1.8)	34	11.5 (2.15)		85.2 %	-1.10 [-2.05, -0.15]
van de Port 2012	125	11 (7)	117	15 (16)		8.1 %	-4.00 [-7.15, -0.85]
Yang 2006	24	12.9 (6.5)	24	14.4 (6.7)		5.7 %	-1.50 [-5.23, 2.23]
Subtotal (95% CI)	**181**		**175**			**99.1 %**	**-1.75 [-3.37, -0.12]**
Heterogeneity: Tau^2 = 0.83; Chi^2 = 2.99, df = 2 (P = 0.22); I^2 =33%							
Test for overall effect: Z = 2.10 (P = 0.035)							
Total (95% CI)	**212**		**206**			**100.0 %**	**-1.37 [-2.26, -0.47]**
Heterogeneity: Tau^2 = 0.01; Chi^2 = 3.01, df = 3 (P = 0.39); I^2 =0%							
Test for overall effect: Z = 2.99 (P = 0.0028)							
Test for subgroup differences: Chi^2 = 0.00, df = 1 (P = 0.96), I^2 =0.0%							



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Analysis 5.33. Comparison 5 Mixed training versus control - end of intervention, Outcome 33 Physical function - Timed Up and Go (sec) - sensitivity analysis - unconfounded trials.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 33 Physical function - Timed Up and Go (sec) - sensitivity analysis - unconfounded trials

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Richards 2004	31	31 (17)	31	33 (20)		3.7 %	-2.00 [-11.24, 7.24]
Subtotal (95% CI)	**31**		**31**			**3.7 %**	**-2.00 [-11.24, 7.24]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.42 (P = 0.67)							
2 After usual care							
Mead 2007	32	10.4 (4.8)	34	11.5 (2.15)		96.3 %	-1.10 [-2.91, 0.71]
Subtotal (95% CI)	**32**		**34**			**96.3 %**	**-1.10 [-2.91, 0.71]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.19 (P = 0.23)							
Total (95% CI)	**63**		**65**			**100.0 %**	**-1.13 [-2.91, 0.65]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.04$, df = 1 (P = 0.85); $I^2 = 0.0\%$							
Test for overall effect: Z = 1.25 (P = 0.21)							
Test for subgroup differences: $Chi^2 = 0.04$, df = 1 (P = 0.85), $I^2 = 0.0\%$							

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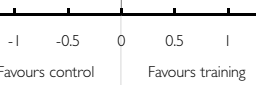
Analysis 5.34. Comparison 5 Mixed training versus control - end of intervention, Outcome 34 Health-related QoL - EuroQol (Health State).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 34 Health-related QoL - EuroQol (Health State)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Cooke 2010	35	0.59 (0.32)	32	0.47 (0.31)		100.0 %	0.12 [-0.03, 0.27]
Subtotal (95% CI)	**35**		**32**			**100.0 %**	**0.12 [-0.03, 0.27]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.56 (P = 0.12)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**35**		**32**			**100.0 %**	**0.12 [-0.03, 0.27]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.56 (P = 0.12)							
Test for subgroup differences: Not applicable							



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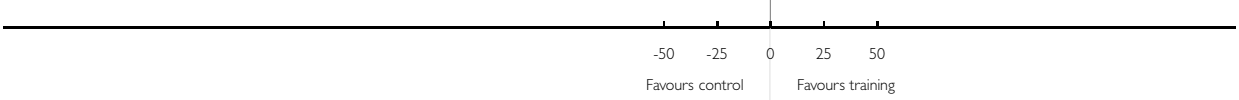
Analysis 5.35. Comparison 5 Mixed training versus control - end of intervention, Outcome 35 Health-related QoL - EuroQol (self perceived health).

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 35 Health-related QoL - EuroQol (self perceived health)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Cooke 2010	35	69.9 (18.9)	32	60.8 (19.6)		100.0 %	9.10 [-0.14, 18.34]
Subtotal (95% CI)	**35**		**32**			**100.0 %**	**9.10 [-0.14, 18.34]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.93 (P = 0.053)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**35**		**32**			**100.0 %**	**9.10 [-0.14, 18.34]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.93 (P = 0.053)							
Test for subgroup differences: Not applicable							



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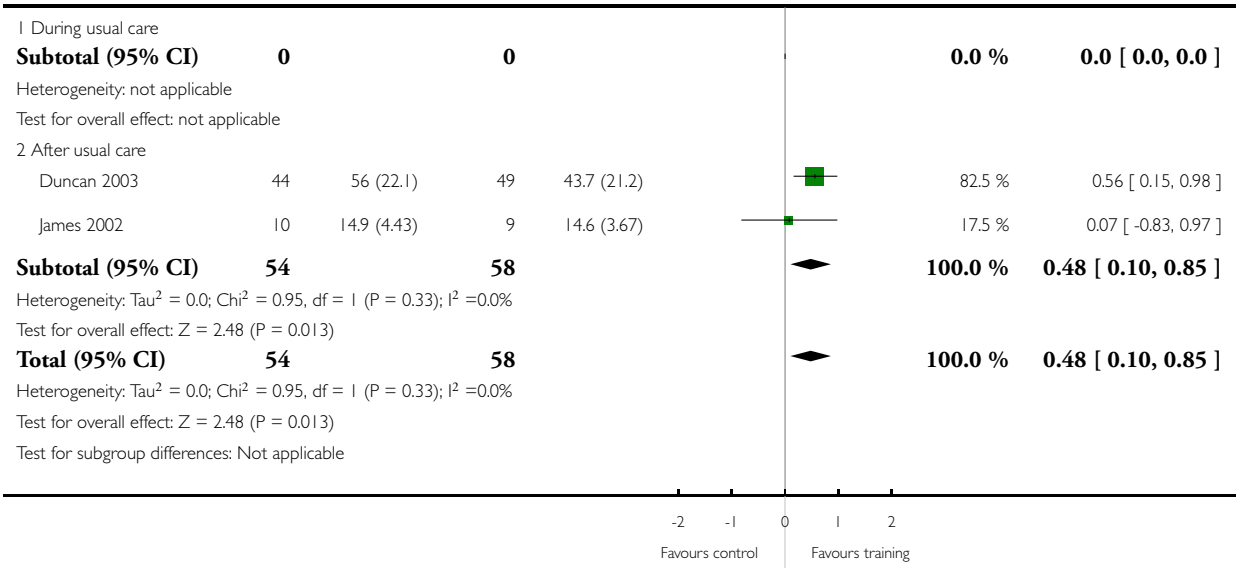
Analysis 5.36. Comparison 5 Mixed training versus control - end of intervention, Outcome 36 Health-related QoL - SF-36 physical functioning.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 36 Health-related QoL - SF-36 physical functioning

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 2003	44	56 (22.1)	49	43.7 (21.2)		82.5 %	0.56 [0.15, 0.98]
James 2002	10	14.9 (4.43)	9	14.6 (3.67)		17.5 %	0.07 [-0.83, 0.97]
Subtotal (95% CI)	**54**		**58**			**100.0 %**	**0.48 [0.10, 0.85]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.95$, df = 1 (P = 0.33); $I^2 = 0.0\%$							
Test for overall effect: Z = 2.48 (P = 0.013)							
Total (95% CI)	**54**		**58**			**100.0 %**	**0.48 [0.10, 0.85]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.95$, df = 1 (P = 0.33); $I^2 = 0.0\%$							
Test for overall effect: Z = 2.48 (P = 0.013)							
Test for subgroup differences: Not applicable							



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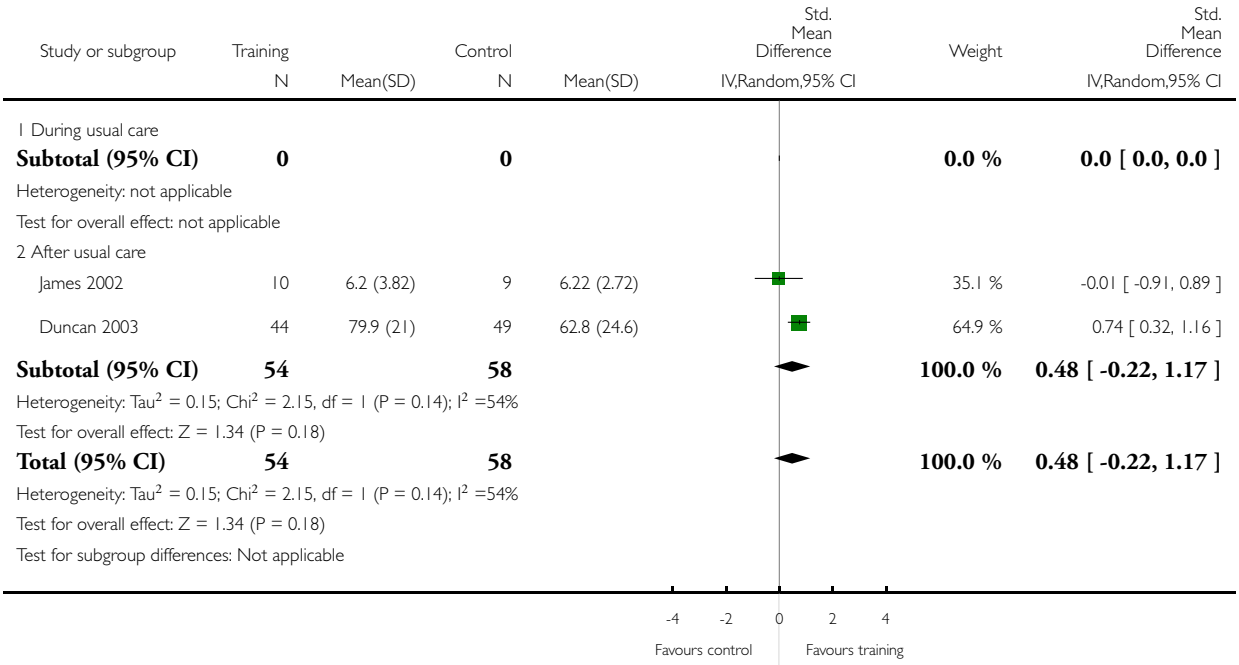
Analysis 5.37. Comparison 5 Mixed training versus control - end of intervention, Outcome 37 Health-related QoL - SF-36 social role functioning.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 37 Health-related QoL - SF-36 social role functioning

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
James 2002	10	6.2 (3.82)	9	6.22 (2.72)		35.1 %	-0.01 [-0.91, 0.89]
Duncan 2003	44	79.9 (21)	49	62.8 (24.6)		64.9 %	0.74 [0.32, 1.16]
Subtotal (95% CI)	**54**		**58**			**100.0 %**	**0.48 [-0.22, 1.17]**
Heterogeneity: $Tau^2 = 0.15$; $Chi^2 = 2.15$, df = 1 (P = 0.14); $I^2 = 54\%$							
Test for overall effect: Z = 1.34 (P = 0.18)							
Total (95% CI)	**54**		**58**			**100.0 %**	**0.48 [-0.22, 1.17]**
Heterogeneity: $Tau^2 = 0.15$; $Chi^2 = 2.15$, df = 1 (P = 0.14); $I^2 = 54\%$							
Test for overall effect: Z = 1.34 (P = 0.18)							
Test for subgroup differences: Not applicable							



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Analysis 5.38. Comparison 5 Mixed training versus control - end of intervention, Outcome 38 Health-related QoL - SF-36 physical role functioning.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 38 Health-related QoL - SF-36 physical role functioning

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 2003	44	44.2 (33.6)	49	27.2 (33.3)		52.9 %	0.50 [0.09, 0.92]
James 2002	10	5.5 (1.64)	9	5.33 (1.5)		11.2 %	0.10 [-0.80, 1.00]
Mead 2007	32	90.8 (14.01)	34	75.5 (22.93)		35.9 %	0.79 [0.29, 1.29]
Subtotal (95% CI)	**86**		**92**			**100.0 %**	**0.56 [0.26, 0.86]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 1.86$, df = 2 (P = 0.39); $I^2 = 0.0\%$							
Test for overall effect: Z = 3.66 (P = 0.00025)							
Total (95% CI)	**86**		**92**			**100.0 %**	**0.56 [0.26, 0.86]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 1.86$, df = 2 (P = 0.39); $I^2 = 0.0\%$							
Test for overall effect: Z = 3.66 (P = 0.00025)							
Test for subgroup differences: Not applicable							

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Analysis 5.39. Comparison 5 Mixed training versus control - end of intervention, Outcome 39 Health-related QoL - SF-36 emotional role functioning.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 39 Health-related QoL - SF-36 emotional role functioning

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 2003	44	93 (22.5)	49	77.5 (37.9)		100.0 %	15.50 [2.98, 28.02]
Subtotal (95% CI)	**44**		**49**			**100.0 %**	**15.50 [2.98, 28.02]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.43 (P = 0.015)							
Total (95% CI)	**44**		**49**			**100.0 %**	**15.50 [2.98, 28.02]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.43 (P = 0.015)							
Test for subgroup differences: Not applicable							

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Analysis 5.40. Comparison 5 Mixed training versus control - end of intervention, Outcome 40 Health-related QoL - Stroke-Adapted Sickness Impact profile.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 40 Health-related QoL - Stroke-Adapted Sickness Impact profile

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Zedlitz 2012	38	15.4 (12.1)	45	18.1 (11.5)		100.0 %	-2.70 [-7.81, 2.41]
Subtotal (95% CI)	**38**		**45**			**100.0 %**	**-2.70 [-7.81, 2.41]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.04 (P = 0.30)							
Total (95% CI)	**38**		**45**			**100.0 %**	**-2.70 [-7.81, 2.41]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.04 (P = 0.30)							
Test for subgroup differences: Not applicable							

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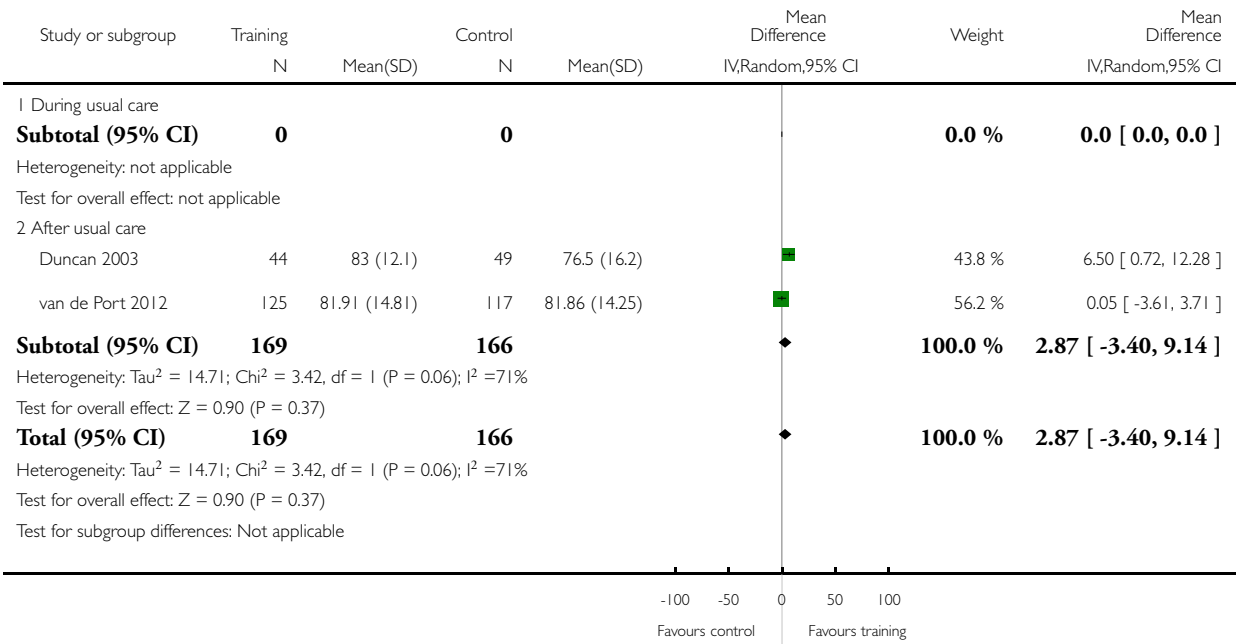
Analysis 5.41. Comparison 5 Mixed training versus control - end of intervention, Outcome 41 Mood - Stroke Impact Scale emotion score.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 41 Mood - Stroke Impact Scale emotion score

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 2003	44	83 (12.1)	49	76.5 (16.2)		43.8 %	6.50 [0.72, 12.28]
van de Port 2012	125	81.91 (14.81)	117	81.86 (14.25)		56.2 %	0.05 [-3.61, 3.71]
Subtotal (95% CI)	**169**		**166**			**100.0 %**	**2.87 [-3.40, 9.14]**
Heterogeneity: Tau^2 = 14.71; Chi^2 = 3.42, df = 1 (P = 0.06); I^2 =71%							
Test for overall effect: Z = 0.90 (P = 0.37)							
Total (95% CI)	**169**		**166**			**100.0 %**	**2.87 [-3.40, 9.14]**
Heterogeneity: Tau^2 = 14.71; Chi^2 = 3.42, df = 1 (P = 0.06); I^2 =71%							
Test for overall effect: Z = 0.90 (P = 0.37)							
Test for subgroup differences: Not applicable							



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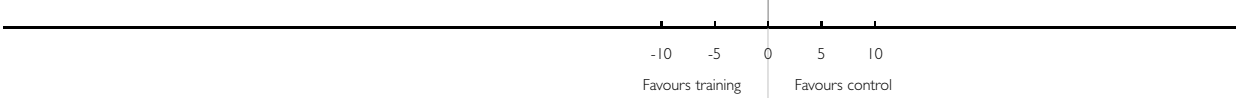
Analysis 5.42. Comparison 5 Mixed training versus control - end of intervention, Outcome 42 Mood - Geriatric Depression Scale.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 42 Mood - Geriatric Depression Scale

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 2003	44	2.5 (2.5)	49	4.4 (3.4)		100.0 %	-1.90 [-3.10, -0.70]
Subtotal (95% CI)	**44**		**49**			**100.0 %**	**-1.90 [-3.10, -0.70]**
Heterogeneity: not applicable							
Test for overall effect: Z = 3.09 (P = 0.0020)							
Total (95% CI)	**44**		**49**			**100.0 %**	**-1.90 [-3.10, -0.70]**
Heterogeneity: not applicable							
Test for overall effect: Z = 3.09 (P = 0.0020)							
Test for subgroup differences: Not applicable							



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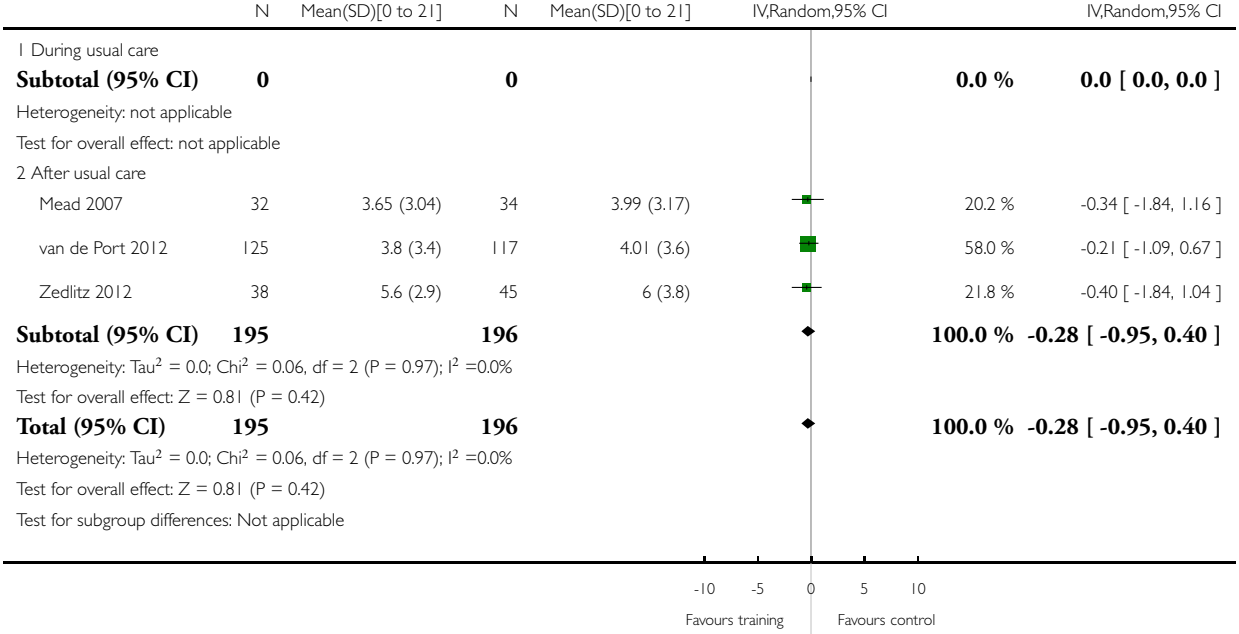
Analysis 5.43. Comparison 5 Mixed training versus control - end of intervention, Outcome 43 Mood - Hospital Anxiety and Depression Scale (HADS)- anxiety score.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 43 Mood - Hospital Anxiety and Depression Scale (HADS)- anxiety score

Study or subgroup	Training N	Mean(SD)[0 to 21]	Control N	Mean(SD)[0 to 21]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mead 2007	32	3.65 (3.04)	34	3.99 (3.17)		20.2 %	-0.34 [-1.84, 1.16]
van de Port 2012	125	3.8 (3.4)	117	4.01 (3.6)		58.0 %	-0.21 [-1.09, 0.67]
Zedlitz 2012	38	5.6 (2.9)	45	6 (3.8)		21.8 %	-0.40 [-1.84, 1.04]
Subtotal (95% CI)	**195**		**196**			**100.0 %**	**-0.28 [-0.95, 0.40]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.06$, df = 2 (P = 0.97); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.81 (P = 0.42)							
Total (95% CI)	**195**		**196**			**100.0 %**	**-0.28 [-0.95, 0.40]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.06$, df = 2 (P = 0.97); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.81 (P = 0.42)							
Test for subgroup differences: Not applicable							



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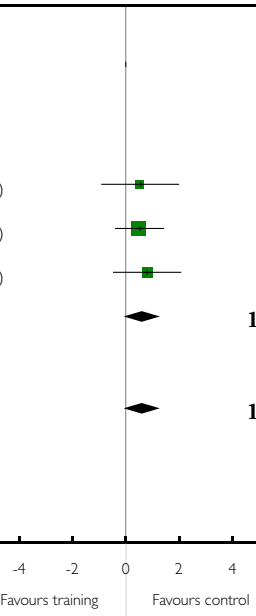
Analysis 5.44. Comparison 5 Mixed training versus control - end of intervention, Outcome 44 Mood - Hospital Anxiety and Depression Scale (HADS) - depression score.

Review: Physical fitness training for stroke patients

Comparison: 5 Mixed training versus control - end of intervention

Outcome: 44 Mood - Hospital Anxiety and Depression Scale (HADS) - depression score

Study or subgroup	Training N	Mean(SD)[0 to 21]	Control N	Mean(SD)[0 to 21]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mead 2007	32	4.05 (3.16)	34	3.51 (2.94)		20.4 %	0.54 [-0.93, 2.01]
van de Port 2012	125	4.92 (3.62)	117	4.42 (3.69)		52.2 %	0.50 [-0.42, 1.42]
Zedlitz 2012	38	6.4 (2.6)	45	5.6 (3.3)		27.5 %	0.80 [-0.47, 2.07]
Subtotal (95% CI)	**195**		**196**			**100.0 %**	**0.59 [-0.08, 1.26]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.15$, df = 2 (P = 0.93); $I^2 = 0.0\%$							
Test for overall effect: Z = 1.74 (P = 0.082)							
Total (95% CI)	**195**		**196**			**100.0 %**	**0.59 [-0.08, 1.26]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.15$, df = 2 (P = 0.93); $I^2 = 0.0\%$							
Test for overall effect: Z = 1.74 (P = 0.082)							
Test for subgroup differences: Not applicable							



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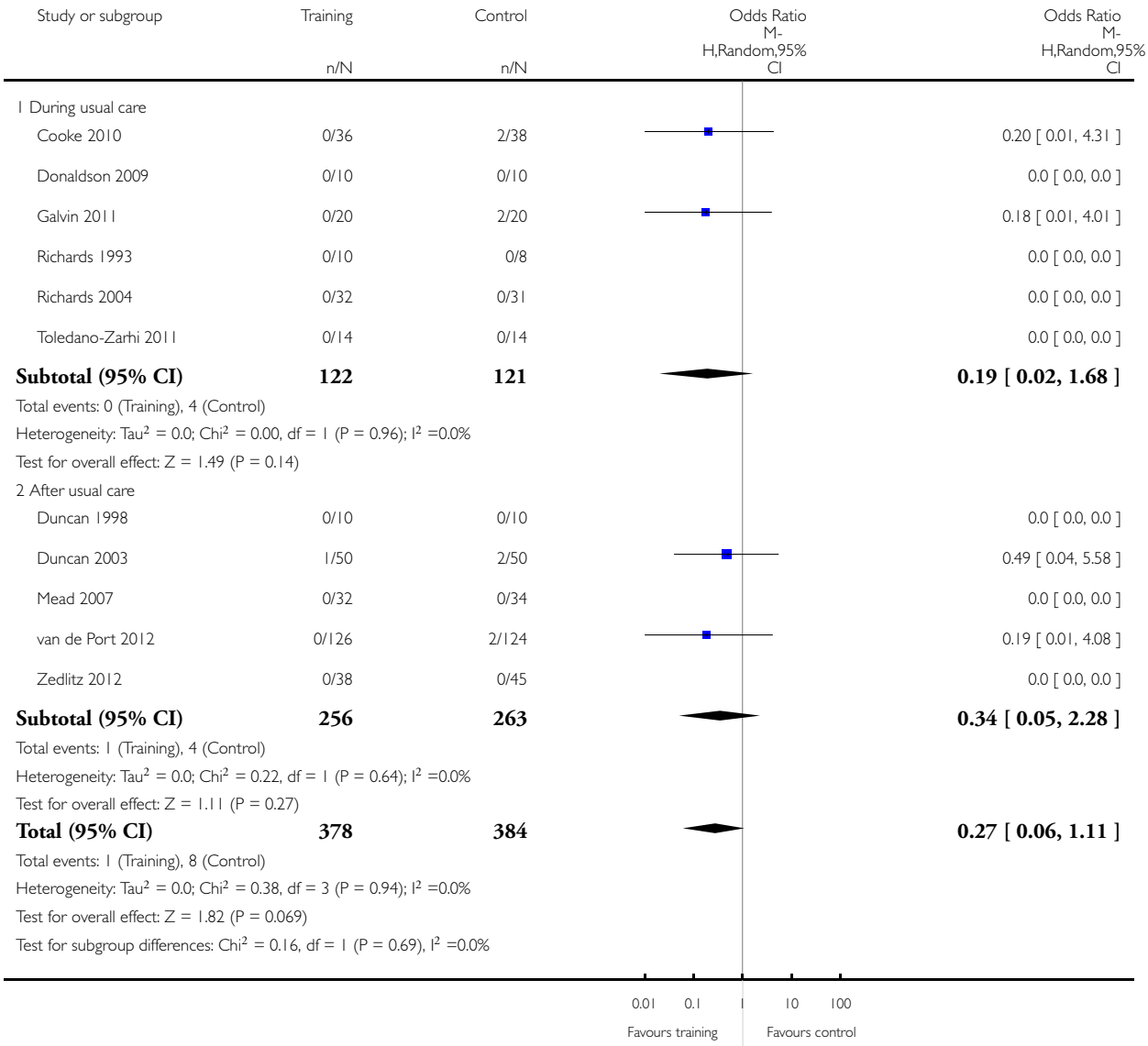
Analysis 6.1. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 1 Case fatality.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 1 Case fatality



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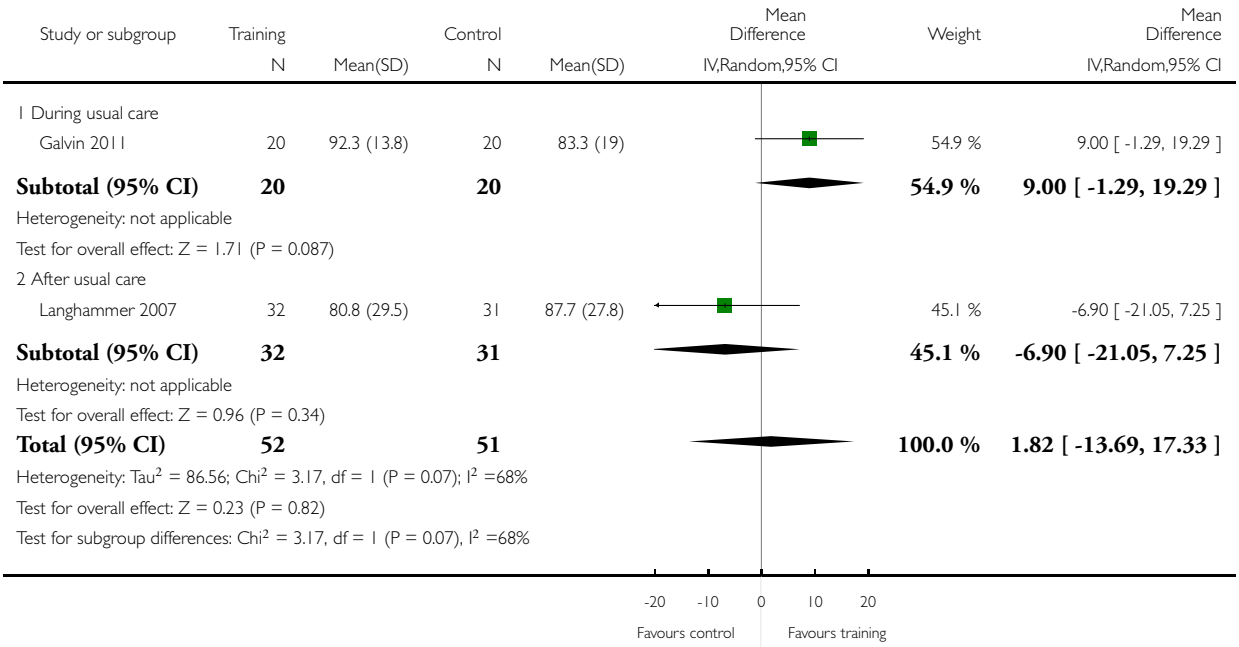
Analysis 6.2. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 2 Disability - Barthel Index (BI).

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 2 Disability - Barthel Index (BI)



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Analysis 6.3. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 3 Disability - Functional Independence Measure (FIM).

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 3 Disability - Functional Independence Measure (FIM)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mead 2007	32	117.9 (4.3)	34	117.7 (4.3)		100.0 %	0.20 [-1.88, 2.28]
Subtotal (95% CI)	**32**		**34**			**100.0 %**	**0.20 [-1.88, 2.28]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.19 (P = 0.85)							
Total (95% CI)	**32**		**34**			**100.0 %**	**0.20 [-1.88, 2.28]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.19 (P = 0.85)							
Test for subgroup differences: Not applicable							

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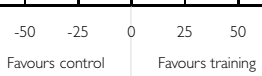
Analysis 6.4. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 4 Disability - Nottingham Extended ADL.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 4 Disability - Nottingham Extended ADL

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Galvin 2011	20	41.5 (15.5)	20	32 (20.7)		30.5 %	9.50 [-1.83, 20.83]
Subtotal (95% CI)	**20**		**20**			**30.5 %**	**9.50 [-1.83, 20.83]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.64 (P = 0.10)							
2 After usual care							
Mead 2007	32	16.7 (2.5)	34	16.4 (2.6)		69.5 %	0.30 [-0.93, 1.53]
Subtotal (95% CI)	**32**		**34**			**69.5 %**	**0.30 [-0.93, 1.53]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.48 (P = 0.63)							
Total (95% CI)	**52**		**54**			**100.0 %**	**3.10 [-5.20, 11.40]**
Heterogeneity: Tau^2 = 25.40; Chi^2 = 2.50, df = 1 (P = 0.11); I^2 =60%							
Test for overall effect: Z = 0.73 (P = 0.46)							
Test for subgroup differences: Chi^2 = 2.50, df = 1 (P = 0.11), I^2 =60%							



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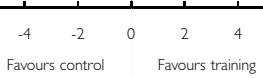
Analysis 6.5. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 5 Disability - Rivermead Mobility Index (RMI).

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 5 Disability - Rivermead Mobility Index (RMI)

Study or subgroup	Training N	Mean(SD)[0 to 15]	Control N	Mean(SD)[0 to 15]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mead 2007	32	13.3 (1.25)	34	13.1 (1.29)		31.3 %	0.20 [-0.41, 0.81]
van de Port 2012	125	13.5 (1.42)	117	13.03 (1.82)		68.7 %	0.47 [0.06, 0.88]
Subtotal (95% CI)	**157**		**151**			**100.0 %**	**0.39 [0.04, 0.73]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.51$, df = 1 (P = 0.47); $I^2 = 0.0\%$							
Test for overall effect: Z = 2.21 (P = 0.027)							
Total (95% CI)	**157**		**151**			**100.0 %**	**0.39 [0.04, 0.73]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.51$, df = 1 (P = 0.47); $I^2 = 0.0\%$							
Test for overall effect: Z = 2.21 (P = 0.027)							
Test for subgroup differences: Not applicable							



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Analysis 6.6. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 6 Disability - Combined disability scales.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 6 Disability - Combined disability scales

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean Difference IV,Random,95% CI
1 During usual care							
Galvin 2011	20	92.3 (13.8)	20	83.3 (19)		14.9 %	0.53 [-0.10, 1.16]
Subtotal (95% CI)	**20**		**20**			**14.9 %**	**0.53 [-0.10, 1.16]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.65 (P = 0.099)							
2 After usual care							
Langhammer 2007	32	80.8 (29.5)	31	87.7 (27.8)		21.2 %	-0.24 [-0.73, 0.26]
Mead 2007	32	117.9 (4.3)	34	117.7 (4.3)		21.9 %	0.05 [-0.44, 0.53]
van de Port 2012	125	13.5 (1.42)	117	13.03 (1.82)		42.0 %	0.29 [0.03, 0.54]
Subtotal (95% CI)	**189**		**182**			**85.1 %**	**0.09 [-0.22, 0.40]**
Heterogeneity: $Tau^2 = 0.04$; $Chi^2 = 3.67$, df = 2 (P = 0.16); $I^2 = 45\%$							
Test for overall effect: Z = 0.58 (P = 0.56)							
Total (95% CI)	**209**		**202**			**100.0 %**	**0.16 [-0.12, 0.44]**
Heterogeneity: $Tau^2 = 0.03$; $Chi^2 = 4.90$, df = 3 (P = 0.18); $I^2 = 39\%$							
Test for overall effect: Z = 1.13 (P = 0.26)							
Test for subgroup differences: $Chi^2 = 1.50$, df = 1 (P = 0.22), $I^2 = 33\%$							

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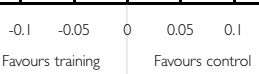
Analysis 6.7. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 7 Physical fitness - gait economy, VO2 (ml/kg/metre).

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 7 Physical fitness - gait economy, VO2 (ml/kg/metre)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mead 2007	32	0.118 (0.03)	34	0.12 (0.04)		100.0 %	0.00 [-0.02, 0.01]
Subtotal (95% CI)	**32**		**34**			**100.0 %**	**0.00 [-0.02, 0.01]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.23 (P = 0.82)							
Total (95% CI)	**32**		**34**			**100.0 %**	**0.00 [-0.02, 0.01]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.23 (P = 0.82)							
Test for subgroup differences: Not applicable							



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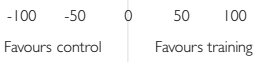
Analysis 6.8. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 8 Physical fitness - muscle strength, knee flexion.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 8 Physical fitness - muscle strength, knee flexion

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Cooke 2010	24	29.4 (21.2)	18	25.2 (22.9)		100.0 %	4.20 [-9.36, 17.76]
Subtotal (95% CI)	**24**		**18**			**100.0 %**	**4.20 [-9.36, 17.76]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.61 (P = 0.54)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**24**		**18**			**100.0 %**	**4.20 [-9.36, 17.76]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.61 (P = 0.54)							
Test for subgroup differences: Not applicable							



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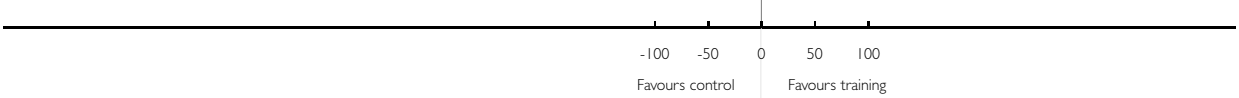
Analysis 6.9. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 9 Physical fitness - muscle strength, knee extension.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 9 Physical fitness - muscle strength, knee extension

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Cooke 2010	24	42.1 (27.5)	18	37.9 (27.8)		100.0 %	4.20 [-12.71, 21.11]
Subtotal (95% CI)	**24**		**18**			**100.0 %**	**4.20 [-12.71, 21.11]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.49 (P = 0.63)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**24**		**18**			**100.0 %**	**4.20 [-12.71, 21.11]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.49 (P = 0.63)							
Test for subgroup differences: Not applicable							



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Analysis 6.10. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 10 Physical fitness - muscle strength, leg extensor power (affected leg) W/Kg.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 10 Physical fitness - muscle strength, leg extensor power (affected leg) W/Kg

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mead 2007	32	1.11 (0.32)	34	1.09 (0.32)		100.0 %	0.02 [-0.13, 0.17]
Subtotal (95% CI)	**32**		**34**			**100.0 %**	**0.02 [-0.13, 0.17]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.25 (P = 0.80)							
Total (95% CI)	**32**		**34**			**100.0 %**	**0.02 [-0.13, 0.17]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.25 (P = 0.80)							
Test for subgroup differences: Not applicable							

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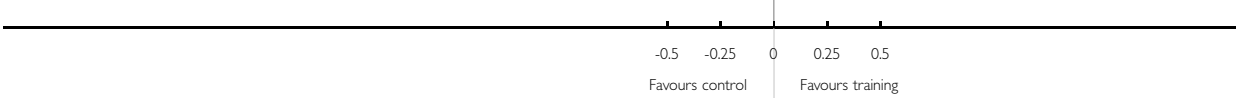
Analysis 6.11. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 11 Physical fitness - grip strength (paretic hand).

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 11 Physical fitness - grip strength (paretic hand)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Langhammer 2007	32	0.63 (0.46)	31	0.67 (0.43)		100.0 %	-0.04 [-0.26, 0.18]
Subtotal (95% CI)	**32**		**31**			**100.0 %**	**-0.04 [-0.26, 0.18]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.36 (P = 0.72)							
Total (95% CI)	**32**		**31**			**100.0 %**	**-0.04 [-0.26, 0.18]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.36 (P = 0.72)							
Test for subgroup differences: Not applicable							



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Analysis 6.12. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 12 Mobility - Functional Ambulation Categories.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 12 Mobility - Functional Ambulation Categories

Study or subgroup	Training N	Mean(SD)[0 to 5]	Control N	Mean(SD)[0 to 5]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
van de Port 2012	125	4.89 (0.36)	117	4.78 (0.49)		100.0 %	0.11 [0.00, 0.22]
Subtotal (95% CI)	**125**		**117**			**100.0 %**	**0.11 [0.00, 0.22]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.98 (P = 0.048)							
Total (95% CI)	**125**		**117**			**100.0 %**	**0.11 [0.00, 0.22]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.98 (P = 0.048)							
Test for subgroup differences: Not applicable							

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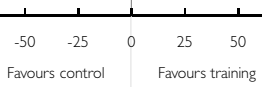
Analysis 6.13. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 13 Mobility - preferred gait speed (m/min).

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 13 Mobility - preferred gait speed (m/min)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Cooke 2010	36	27.6 (22.2)	38	26.4 (23.4)		20.0 %	1.20 [-9.19, 11.59]
Richards 1993	31	39 (22.8)	31	42.6 (22.2)		18.8 %	-3.60 [-14.80, 7.60]
Subtotal (95% CI)	**67**		**69**			**38.8 %**	**-1.02 [-8.64, 6.60]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.38$, df = 1 (P = 0.54); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.26 (P = 0.79)							
2 After usual care							
Mead 2007	32	41.88 (6.06)	33	44.16 (6)		32.3 %	-2.28 [-5.21, 0.65]
van de Port 2012	125	66 (18)	117	56.4 (23.4)		28.9 %	9.60 [4.31, 14.89]
Subtotal (95% CI)	**157**		**150**			**61.2 %**	**3.45 [-8.19, 15.08]**
Heterogeneity: $Tau^2 = 65.81$; $Chi^2 = 14.84$, df = 1 (P = 0.00012); $I^2 = 93\%$							
Test for overall effect: Z = 0.58 (P = 0.56)							
Total (95% CI)	**224**		**219**			**100.0 %**	**1.60 [-5.62, 8.82]**
Heterogeneity: $Tau^2 = 39.72$; $Chi^2 = 15.36$, df = 3 (P = 0.002); $I^2 = 80\%$							
Test for overall effect: Z = 0.43 (P = 0.66)							
Test for subgroup differences: $Chi^2 = 0.40$, df = 1 (P = 0.53), $I^2 = 0.0\%$							



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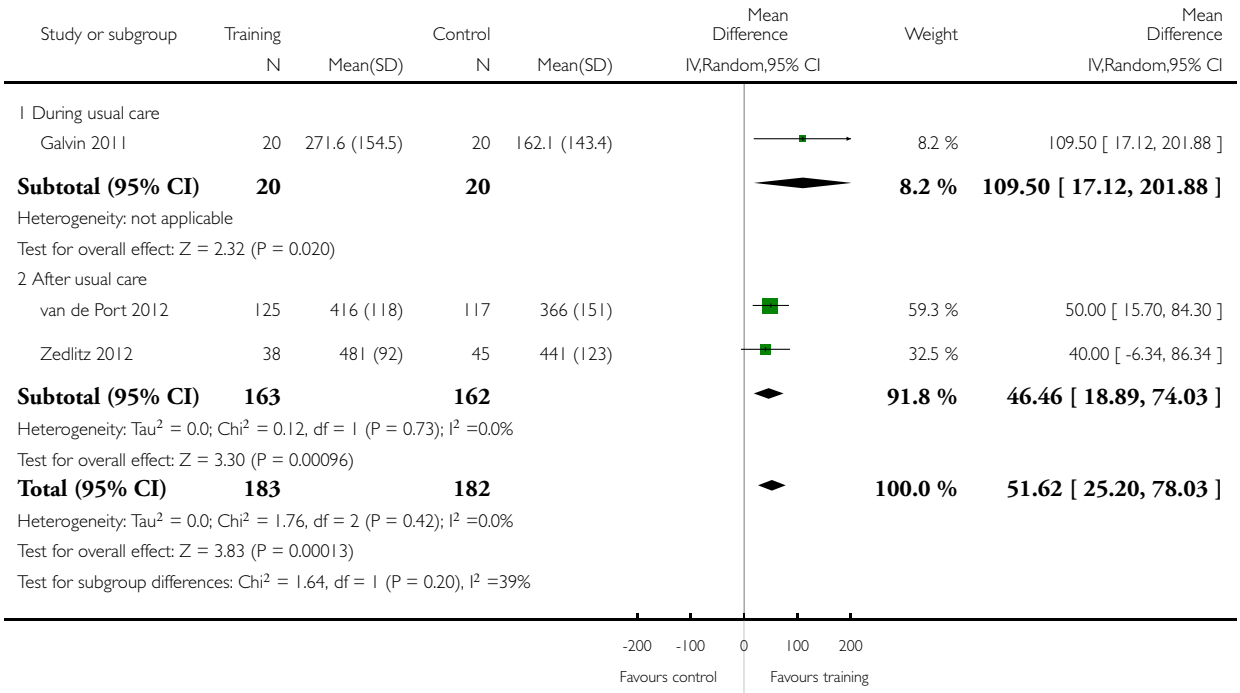
Analysis 6.14. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 14 Mobility - gait endurance (6-MWT metres).

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 14 Mobility - gait endurance (6-MWT metres)



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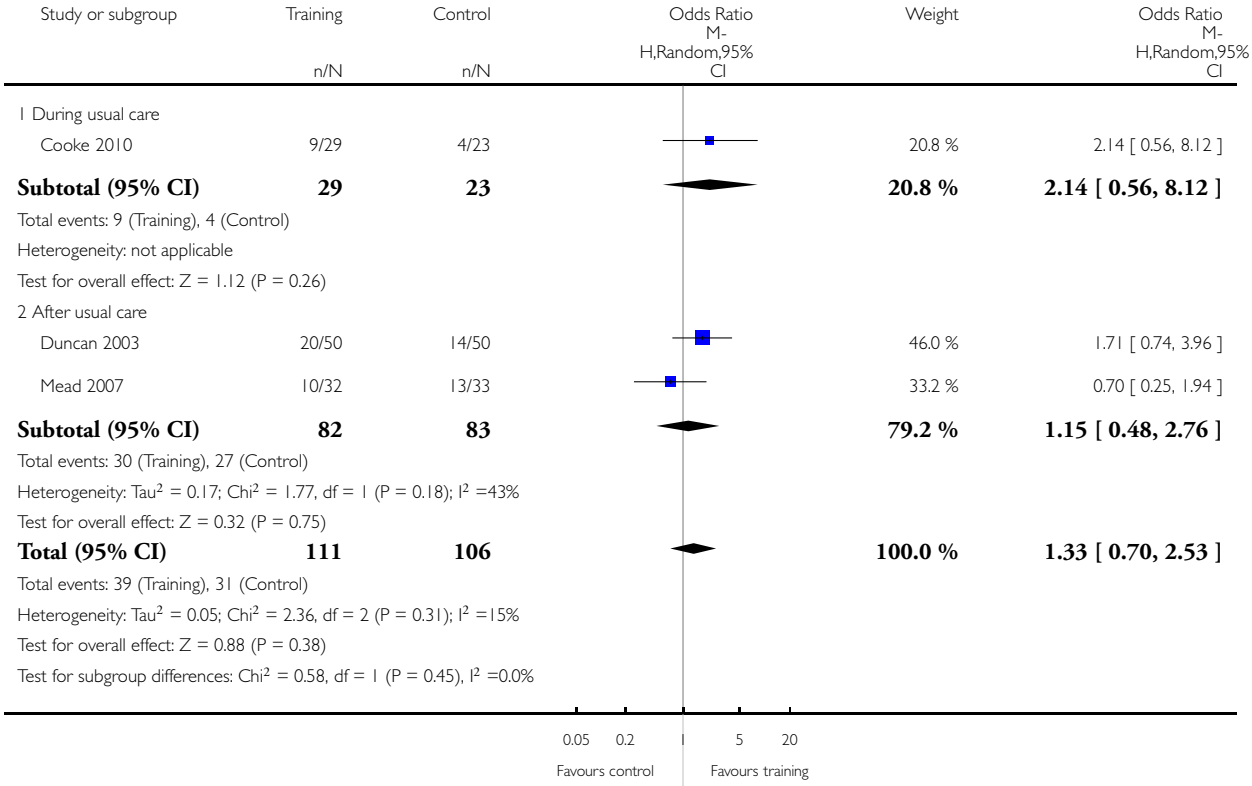
Analysis 6.15. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 15 Mobility - community ambulation speed (> 0.8 m/sec).

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 15 Mobility - community ambulation speed (> 0.8 m/sec)



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Analysis 6.16. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 16 Physical function - Balance - Berg Balance scale.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 16 Physical function - Balance - Berg Balance scale

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Galvin 2011	20	46 (14.2)	20	37.6 (16.2)		40.5 %	8.40 [-1.04, 17.84]
Richards 2004	31	47 (7)	31	49 (6)		59.5 %	-2.00 [-5.25, 1.25]
Subtotal (95% CI)	**51**		**51**			**100.0 %**	**2.22 [-7.79, 12.22]**
Heterogeneity: Tau^2 = 41.11; Chi^2 = 4.17, df = 1 (P = 0.04); I^2 =76%							
Test for overall effect: Z = 0.43 (P = 0.66)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**51**		**51**			**100.0 %**	**2.22 [-7.79, 12.22]**
Heterogeneity: Tau^2 = 41.11; Chi^2 = 4.17, df = 1 (P = 0.04); I^2 =76%							
Test for overall effect: Z = 0.43 (P = 0.66)							
Test for subgroup differences: Not applicable							

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Analysis 6.17. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 17 Physical function - Balance - Functional reach.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 17 Physical function - Balance - Functional reach

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mead 2007	32	28.3 (6.93)	34	25.8 (7.45)		100.0 %	2.50 [-0.97, 5.97]
Subtotal (95% CI)	**32**		**34**			**100.0 %**	**2.50 [-0.97, 5.97]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.41 (P = 0.16)							
Total (95% CI)	**32**		**34**			**100.0 %**	**2.50 [-0.97, 5.97]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.41 (P = 0.16)							
Test for subgroup differences: Not applicable							

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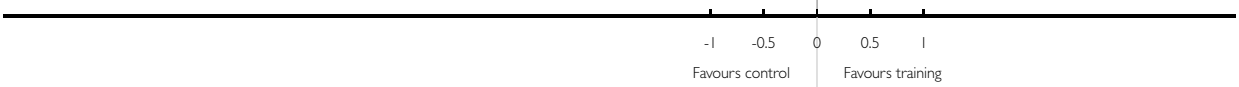
Analysis 6.18. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 18 Physical function - Balance - Timed balance test.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 18 Physical function - Balance - Timed balance test

Study or subgroup	Training N	Mean(SD)[0 to 5]	Control N	Mean(SD)[0 to 5]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
van de Port 2012	125	3.82 (1.45)	117	3.36 (1.52)		100.0 %	0.46 [0.09, 0.83]
Subtotal (95% CI)	**125**		**117**			**100.0 %**	**0.46 [0.09, 0.83]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.41 (P = 0.016)							
Total (95% CI)	**125**		**117**			**100.0 %**	**0.46 [0.09, 0.83]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.41 (P = 0.016)							
Test for subgroup differences: Not applicable							



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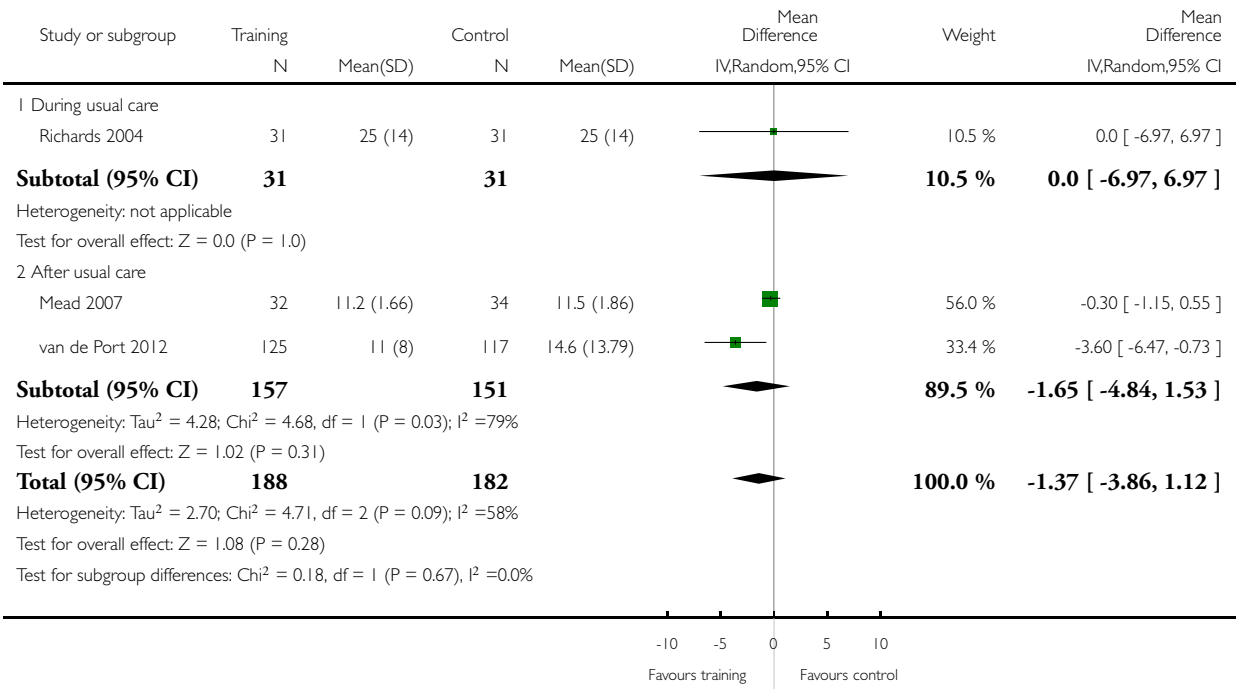
Analysis 6.19. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 19 Physical function - Timed Up and Go (sec).

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 19 Physical function - Timed Up and Go (sec)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Richards 2004	31	25 (14)	31	25 (14)		10.5 %	0.0 [-6.97, 6.97]
Subtotal (95% CI)	**31**		**31**			**10.5 %**	**0.0 [-6.97, 6.97]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.0 (P = 1.0)							
2 After usual care							
Mead 2007	32	11.2 (1.66)	34	11.5 (1.86)		56.0 %	-0.30 [-1.15, 0.55]
van de Port 2012	125	11 (8)	117	14.6 (13.79)		33.4 %	-3.60 [-6.47, -0.73]
Subtotal (95% CI)	**157**		**151**			**89.5 %**	**-1.65 [-4.84, 1.53]**
Heterogeneity: Tau^2 = 4.28; Chi^2 = 4.68, df = 1 (P = 0.03); I^2 =79%							
Test for overall effect: Z = 1.02 (P = 0.31)							
Total (95% CI)	**188**		**182**			**100.0 %**	**-1.37 [-3.86, 1.12]**
Heterogeneity: Tau^2 = 2.70; Chi^2 = 4.71, df = 2 (P = 0.09); I^2 =58%							
Test for overall effect: Z = 1.08 (P = 0.28)							
Test for subgroup differences: Chi^2 = 0.18, df = 1 (P = 0.67), I^2 =0.0%							



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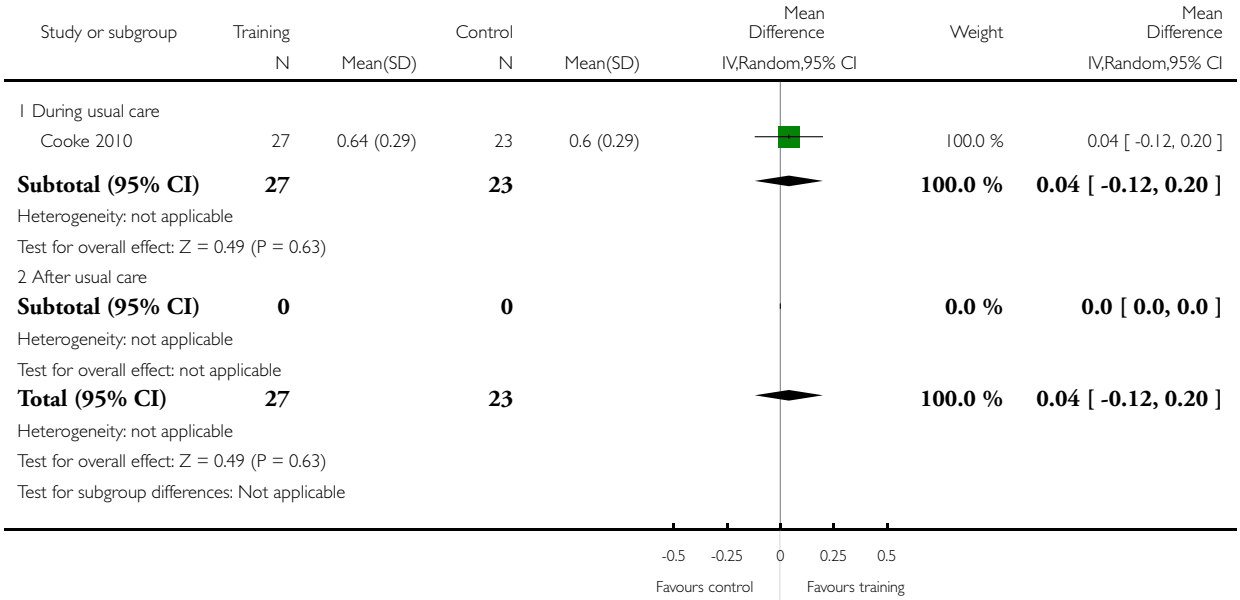
Analysis 6.20. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 20 Health-related QoL - EuroQol (Health State).

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 20 Health-related QoL - EuroQol (Health State)



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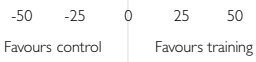
Analysis 6.21. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 21 Health-related QoL - EuroQol (self perceived health).

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 21 Health-related QoL - EuroQol (self perceived health)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Cooke 2010	26	69.6 (19.3)	23	66.2 (18.9)		100.0 %	3.40 [-7.31, 14.11]
Subtotal (95% CI)	**26**		**23**			**100.0 %**	**3.40 [-7.31, 14.11]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.62 (P = 0.53)							
2 After usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Total (95% CI)	**26**		**23**			**100.0 %**	**3.40 [-7.31, 14.11]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.62 (P = 0.53)							
Test for subgroup differences: Not applicable							



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Analysis 6.22. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 22 Health-related QoL - SF-36 physical functioning.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 22 Health-related QoL - SF-36 physical functioning

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 2003	40	58.9 (22.7)	40	51 (22.9)		45.0 %	7.90 [-2.09, 17.89]
Mead 2007	32	55.8 (16.36)	34	57.8 (16.34)		55.0 %	-2.00 [-9.89, 5.89]
Subtotal (95% CI)	**72**		**74**			**100.0 %**	**2.46 [-7.20, 12.11]**
Heterogeneity: Tau^2 = 27.90; Chi^2 = 2.32, df = 1 (P = 0.13); I^2 =57%							
Test for overall effect: Z = 0.50 (P = 0.62)							
Total (95% CI)	**72**		**74**			**100.0 %**	**2.46 [-7.20, 12.11]**
Heterogeneity: Tau^2 = 27.90; Chi^2 = 2.32, df = 1 (P = 0.13); I^2 =57%							
Test for overall effect: Z = 0.50 (P = 0.62)							
Test for subgroup differences: Not applicable							

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Analysis 6.23. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 23 Health-related QoL - SF-36 physical role functioning.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 23 Health-related QoL - SF-36 physical role functioning

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 2003	40	50 (37.6)	40	40 (32.9)		35.5 %	10.00 [-5.48, 25.48]
Mead 2007	32	84.2 (20.25)	34	71.7 (27.08)		64.5 %	12.50 [1.01, 23.99]
Subtotal (95% CI)	**72**		**74**			**100.0 %**	**11.61 [2.38, 20.84]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.06$, df = 1 (P = 0.80); $I^2 = 0.0\%$							
Test for overall effect: Z = 2.47 (P = 0.014)							
Total (95% CI)	**72**		**74**			**100.0 %**	**11.61 [2.38, 20.84]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.06$, df = 1 (P = 0.80); $I^2 = 0.0\%$							
Test for overall effect: Z = 2.47 (P = 0.014)							
Test for subgroup differences: Not applicable							

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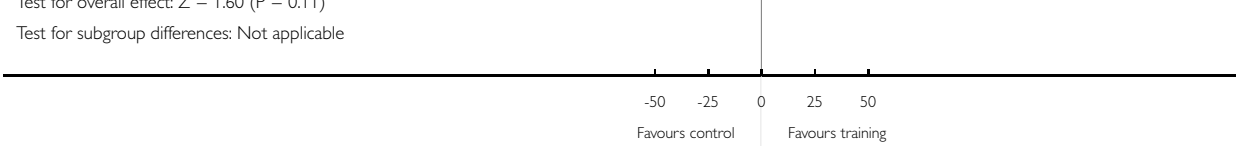
Analysis 6.24. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 24 Health-related QoL - SF-36 emotional role functioning.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 24 Health-related QoL - SF-36 emotional role functioning

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 2003	40	95.8 (23.5)	40	85.8 (31.9)		100.0 %	10.00 [-2.28, 22.28]
Subtotal (95% CI)	**40**		**40**			**100.0 %**	**10.00 [-2.28, 22.28]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.60 (P = 0.11)							
Total (95% CI)	**40**		**40**			**100.0 %**	**10.00 [-2.28, 22.28]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.60 (P = 0.11)							
Test for subgroup differences: Not applicable							



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Analysis 6.25. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 25 Health-related QoL - Stroke-Adapted Sickness Impact profile.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 25 Health-related QoL - Stroke-Adapted Sickness Impact profile

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Zedlitz 2012	38	15.7 (13.9)	45	16.4 (11)		100.0 %	-0.70 [-6.16, 4.76]
Subtotal (95% CI)	**38**		**45**			**100.0 %**	**-0.70 [-6.16, 4.76]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.25 (P = 0.80)							
Total (95% CI)	**38**		**45**			**100.0 %**	**-0.70 [-6.16, 4.76]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.25 (P = 0.80)							
Test for subgroup differences: Not applicable							

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Analysis 6.26. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 26 Mood - Stroke Impact Scale emotion score.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 26 Mood - Stroke Impact Scale emotion score

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 2003	40	81.1 (14.1)	40	80.1 (16.8)		24.8 %	1.00 [-5.80, 7.80]
van de Port 2012	125	82.02 (14.87)	117	82.18 (16.02)		75.2 %	-0.16 [-4.06, 3.74]
Subtotal (95% CI)	**165**		**157**			**100.0 %**	**0.13 [-3.26, 3.51]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.08$, df = 1 (P = 0.77); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.07 (P = 0.94)							
Total (95% CI)	**165**		**157**			**100.0 %**	**0.13 [-3.26, 3.51]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.08$, df = 1 (P = 0.77); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.07 (P = 0.94)							
Test for subgroup differences: Not applicable							

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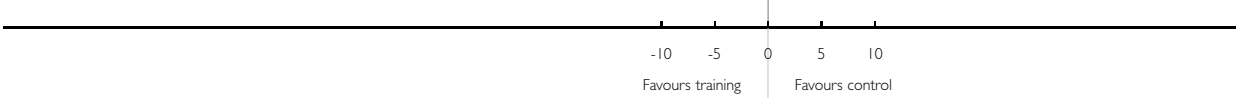
Analysis 6.27. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 27 Mood - Geriatric Depression Scale.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 27 Mood - Geriatric Depression Scale

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Duncan 2003	40	2 (1.8)	40	3.4 (3.2)		100.0 %	-1.40 [-2.54, -0.26]
Subtotal (95% CI)	**40**		**40**			**100.0 %**	**-1.40 [-2.54, -0.26]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.41 (P = 0.016)							
Total (95% CI)	**40**		**40**			**100.0 %**	**-1.40 [-2.54, -0.26]**
Heterogeneity: not applicable							
Test for overall effect: Z = 2.41 (P = 0.016)							
Test for subgroup differences: Not applicable							



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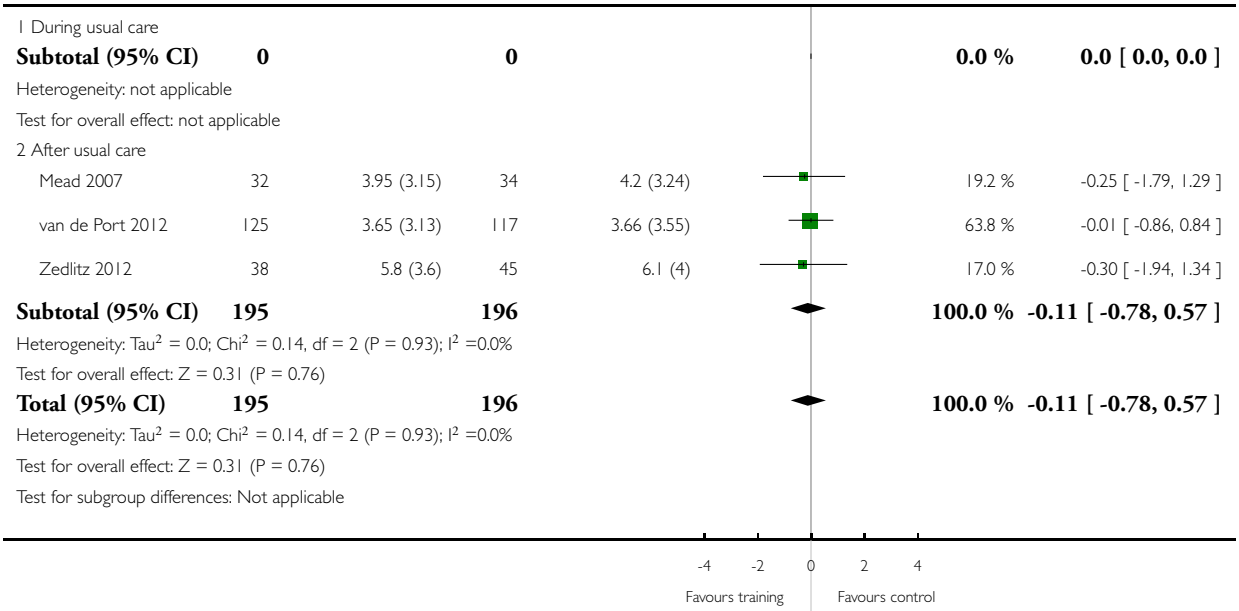
Analysis 6.28. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 28 Mood - Hospital Anxiety and Depression Scale (HADS) - anxiety score.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 28 Mood - Hospital Anxiety and Depression Scale (HADS) - anxiety score

Study or subgroup	Training N	Mean(SD)[0 to 21]	Control N	Mean(SD)[0 to 21]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mead 2007	32	3.95 (3.15)	34	4.2 (3.24)		19.2 %	-0.25 [-1.79, 1.29]
van de Port 2012	125	3.65 (3.13)	117	3.66 (3.55)		63.8 %	-0.01 [-0.86, 0.84]
Zedlitz 2012	38	5.8 (3.6)	45	6.1 (4)		17.0 %	-0.30 [-1.94, 1.34]
Subtotal (95% CI)	**195**		**196**			**100.0 %**	**-0.11 [-0.78, 0.57]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.14$, df = 2 (P = 0.93); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.31 (P = 0.76)							
Total (95% CI)	**195**		**196**			**100.0 %**	**-0.11 [-0.78, 0.57]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.14$, df = 2 (P = 0.93); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.31 (P = 0.76)							
Test for subgroup differences: Not applicable							



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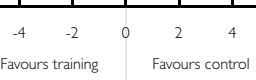
Analysis 6.29. Comparison 6 Mixed training versus control - end of retention follow-up, Outcome 29 Mood - Hospital Anxiety and Depression Scale (HADS) - depression score.

Review: Physical fitness training for stroke patients

Comparison: 6 Mixed training versus control - end of retention follow-up

Outcome: 29 Mood - Hospital Anxiety and Depression Scale (HADS) - depression score

Study or subgroup	Training N	Mean(SD)[0 to 21]	Control N	Mean(SD)[0 to 21]	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 During usual care							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
2 After usual care							
Mead 2007	32	4.21 (3.04)	34	4.03 (2.95)		23.2 %	0.18 [-1.27, 1.63]
van de Port 2012	125	4.52 (3.52)	117	4.28 (4)		53.6 %	0.24 [-0.71, 1.19]
Zedlitz 2012	38	6.1 (3.4)	45	5.7 (3.3)		23.2 %	0.40 [-1.05, 1.85]
Subtotal (95% CI)	**195**		**196**			**100.0 %**	**0.26 [-0.43, 0.96]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.05$, df = 2 (P = 0.98); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.74 (P = 0.46)							
Total (95% CI)	**195**		**196**			**100.0 %**	**0.26 [-0.43, 0.96]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.05$, df = 2 (P = 0.98); $I^2 = 0.0\%$							
Test for overall effect: Z = 0.74 (P = 0.46)							
Test for subgroup differences: Not applicable							



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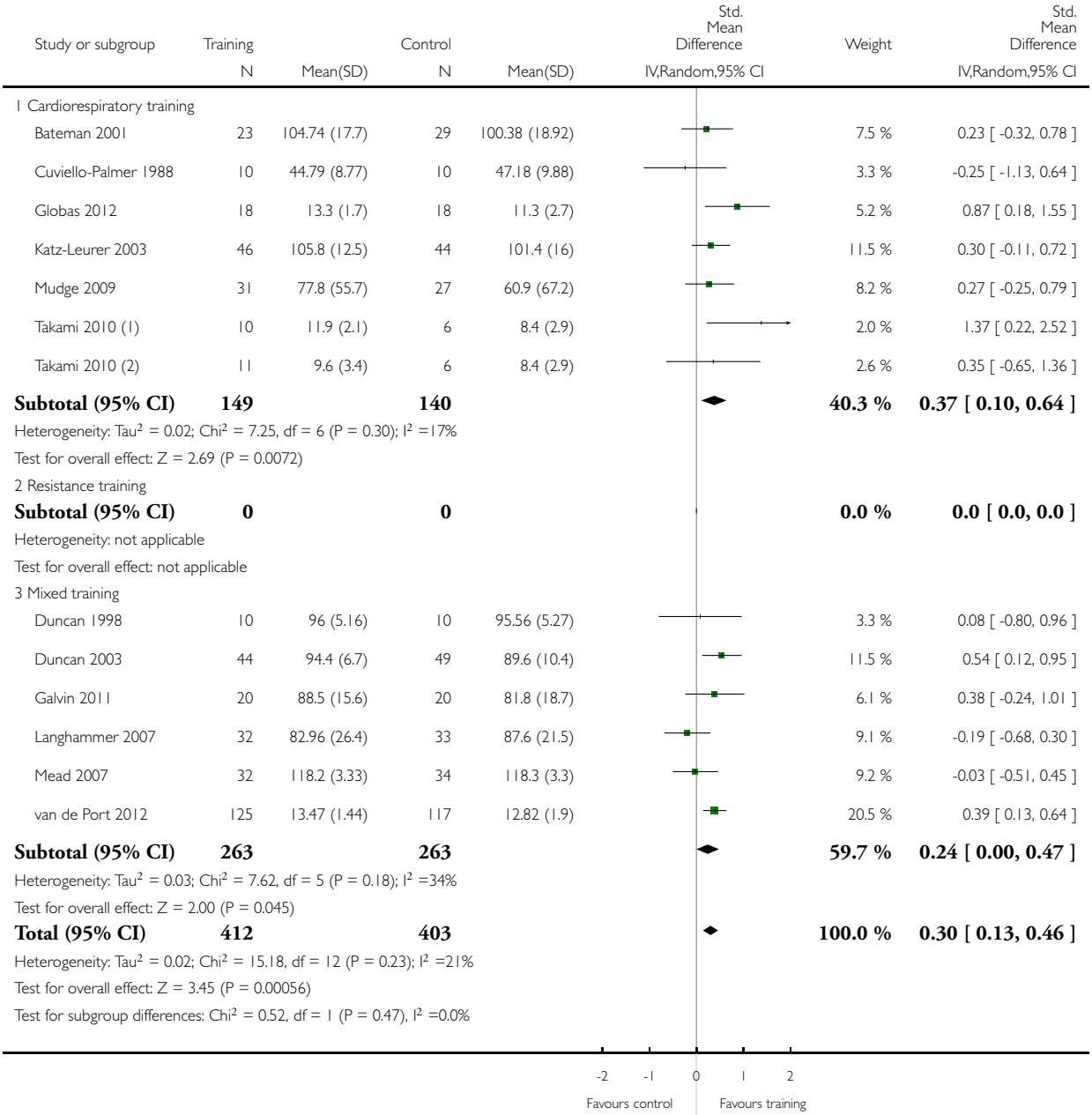
Analysis 7.1. Comparison 7 Cardiorespiratory versus resistance versus mixed training, Outcome 1 Disability - combined disability scales.

Review: Physical fitness training for stroke patients

Comparison: 7 Cardiorespiratory versus resistance versus mixed training

Outcome: 1 Disability - combined disability scales



(1) Takami 2010 forward walking group with 50% of the control participants

(2) Takami 2010 backward walking group with 50% of the control participants

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Analysis 7.2. Comparison 7 Cardiorespiratory versus resistance versus mixed training, Outcome 2 Mobility - maximal walking speed.

Review: Physical fitness training for stroke patients

Comparison: 7 Cardiorespiratory versus resistance versus mixed training

Outcome: 2 Mobility - maximal walking speed

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 Cardiorespiratory training							
Ada 2013 (1)	34	53.4 (30)	17	43.8 (24.6)		5.0 %	9.60 [-5.84, 25.04]
Ada 2013 (2)	34	48 (28.2)	17	45 (24.6)		5.2 %	3.00 [-12.05, 18.05]
Bateman 2001	36	16 (11.06)	37	16.22 (19.49)		15.9 %	-0.22 [-7.47, 7.03]
da Cunha 2002	6	35.4 (17.4)	7	16.2 (13.8)		4.1 %	19.20 [1.93, 36.47]
Eich 2004	25	42.6 (18)	25	36 (13.2)		12.4 %	6.60 [-2.15, 15.35]
Globas 2012	18	61.2 (22.8)	18	52.2 (37.2)		3.1 %	9.00 [-11.16, 29.16]
Kang 2012	10	30 (12)	10	30 (6)		13.3 %	0.0 [-8.32, 8.32]
Kuys 2011	13	51.6 (25.8)	15	51.6 (28.2)		3.1 %	0.0 [-20.01, 20.01]
Moore 2010	10	54.6 (26.4)	10	46.2 (19.2)		3.0 %	8.40 [-11.83, 28.63]
Mudge 2009	31	47.4 (16.8)	27	37.8 (15)		13.6 %	9.60 [1.42, 17.78]
Park 2011	13	43.2 (14.1)	12	30 (13.8)		8.9 %	13.20 [2.26, 24.14]
Pohl 2002 (3)	20	73.2 (44.4)	10	58.2 (38.4)		1.4 %	15.00 [-15.74, 45.74]
Pohl 2002 (4)	20	97.8 (48)	10	58.2 (38.4)		1.3 %	39.60 [7.84, 71.36]
Salbach 2004	44	59.4 (33.6)	47	48 (29.4)		6.7 %	11.40 [-1.61, 24.41]
Takami 2010 (5)	10	91.5 (23.3)	6	66.8 (29.4)		1.7 %	24.70 [-2.90, 52.30]
Takami 2010 (6)	11	84.8 (30.2)	6	66.8 (29.4)		1.5 %	18.00 [-11.53, 47.53]
Subtotal (95% CI)	**335**		**274**			**100.0 %**	**7.37 [3.70, 11.03]**
Heterogeneity: $Tau^2 = 8.33$; $Chi^2 = 17.82$, df = 15 (P = 0.27); $I^2 = 16\%$							
Test for overall effect: Z = 3.94 (P = 0.000082)							
2 Resistance training							
Bale 2008 (7)	8	17.4 (6)	10	9 (6)		30.5 %	8.40 [2.82, 13.98]
Flansbjer 2008 (8)	15	3.98 (7.89)	9	4.63 (7.29)		28.3 %	-0.65 [-6.86, 5.56]

-100 -50 0 50 100

Favours control Favours training

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Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
Kim 2001 (9)	10	3 (5.4)	10	4.2 (4.8)		34.4 %	-1.20 [-5.68, 3.28]
Ouellette 2004	21	51.6 (30.24)	21	52.2 (32.99)		6.8 %	-0.60 [-19.74, 18.54]
Subtotal (95% CI)	**54**		**50**			**100.0 %**	**1.92 [-3.50, 7.35]**
Heterogeneity: Tau^2 = 17.04; Chi^2 = 7.76, df = 3 (P = 0.05); I^2 =61%							
Test for overall effect: Z = 0.69 (P = 0.49)							
3 Mixed training							
Subtotal (95% CI)	**0**		**0**			**0.0 %**	**0.0 [0.0, 0.0]**
Heterogeneity: not applicable							
Test for overall effect: not applicable							
Test for subgroup differences: Chi^2 = 2.66, df = 1 (P = 0.10), I^2 =62%							

(1) Ada 2013 4 month training group with 50% of the control participants

(2) Ada 2013 2 month training group with 50% of the control participants

(3) Pohl 2002 limited progression treadmill training group (STT) with 50% of the control participants

(4) Pohl 2002 speed-dependent treadmill training group (STT) with 50% of the control participants

(5) Takami 2010 forward walking group with 50% of the control participants

(6) Takami 2010 backward walking group with 50% of the control participants

(7) Results are presented as mean change scores

(8) Data were obtained from the authors and are presented as mean change scores

(9) Results are presented as mean change scores

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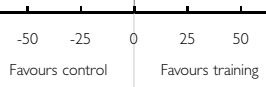
Analysis 7.3. Comparison 7 Cardiorespiratory versus resistance versus mixed training, Outcome 3 Mobility - preferred walking speed (m/min).

Review: Physical fitness training for stroke patients

Comparison: 7 Cardiorespiratory versus resistance versus mixed training

Outcome: 3 Mobility - preferred walking speed (m/min)

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 Cardiorespiratory training							
Ada 2013 (1)	34	36 (21)	17	33.6 (16.2)		7.1 %	2.40 [-8.05, 12.85]
Ada 2013 (2)	34	40.8 (21.6)	17	33 (16.8)		6.7 %	7.80 [-2.99, 18.59]
Cuviello-Palmer 1988	10	18.11 (9.22)	10	12.07 (6.41)		16.1 %	6.04 [-0.92, 13.00]
Globas 2012	18	47.4 (17.4)	18	42 (27.6)		3.4 %	5.40 [-9.67, 20.47]
Ivey 2011	19	38.62 (17.17)	19	31.65 (16.63)		6.7 %	6.97 [-3.78, 17.72]
Katz-Leurer 2003	46	30.6 (10.8)	44	27 (9.6)		43.8 %	3.60 [-0.62, 7.82]
Kuys 2011	13	37.8 (18)	15	40.8 (22.2)		3.5 %	-3.00 [-17.90, 11.90]
Moore 2010	10	37.8 (18)	10	34.8 (13.8)		3.9 %	3.00 [-11.06, 17.06]
Salbach 2004	44	46.8 (24)	47	38.4 (22.2)		8.6 %	8.40 [-1.12, 17.92]
Subtotal (95% CI)	**228**		**197**			**100.0 %**	**4.63 [1.84, 7.43]**
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 2.75$, df = 8 (P = 0.95); $I^2 = 0.0\%$							
Test for overall effect: Z = 3.25 (P = 0.0011)							
2 Resistance training							
Bale 2008	8	13.8 (6)	10	4.8 (6)		39.0 %	9.00 [3.42, 14.58]
Kim 2001	10	2.4 (7.8)	10	5.4 (4.2)		39.2 %	-3.00 [-8.49, 2.49]
Ouellette 2004	21	38.4 (22)	21	38.4 (24.75)		21.7 %	0.0 [-14.16, 14.16]
Subtotal (95% CI)	**39**		**41**			**100.0 %**	**2.34 [-6.77, 11.45]**
Heterogeneity: $Tau^2 = 47.20$; $Chi^2 = 9.18$, df = 2 (P = 0.01); $I^2 = 78\%$							
Test for overall effect: Z = 0.50 (P = 0.61)							
3 Mixed training							
Cooke 2010	36	25.2 (23.4)	38	18 (21)		7.5 %	7.20 [-2.95, 17.35]
Duncan 2003	50	10.8 (12.6)	50	6.6 (8.4)		14.7 %	4.20 [0.00, 8.40]
James 2002	10	12 (1.68)	8	12 (1.68)		17.8 %	0.0 [-1.56, 1.56]
Mead 2007	32	44.1 (6.3)	33	44.1 (6.42)		16.2 %	0.0 [-3.09, 3.09]
Richards 1993	9	18.78 (11.88)	8	13.5 (8.76)		7.7 %	5.28 [-4.57, 15.13]
Richards 2004	31	33 (21)	31	36 (21.6)		7.1 %	-3.00 [-13.60, 7.60]



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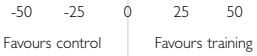
Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
Teixeira 1999	6	61.8 (24)	7	46.8 (22.2)		1.8 %	15.00 [-10.28, 40.28]
van de Port 2012	125	66 (18)	117	53.4 (21.6)		13.5 %	12.60 [7.57, 17.63]
Yang 2006	24	55.5 (8.1)	24	46.62 (9.24)		13.7 %	8.88 [3.96, 13.80]
Subtotal (95% CI)	**323**		**316**			**100.0 %**	**4.54 [0.95, 8.14]**

Heterogeneity: Tau^2 = 18.23; Chi^2 = 36.76, df = 8 (P = 0.00001); I^2 =78%

Test for overall effect: Z = 2.48 (P = 0.013)

Test for subgroup differences: Chi^2 = 0.23, df = 2 (P = 0.89), I^2 =0.0%



(1) Ada 2013 2 month training group with 50% of the control participants

(2) Ada 2013 4 month training group with 50% of the control participants

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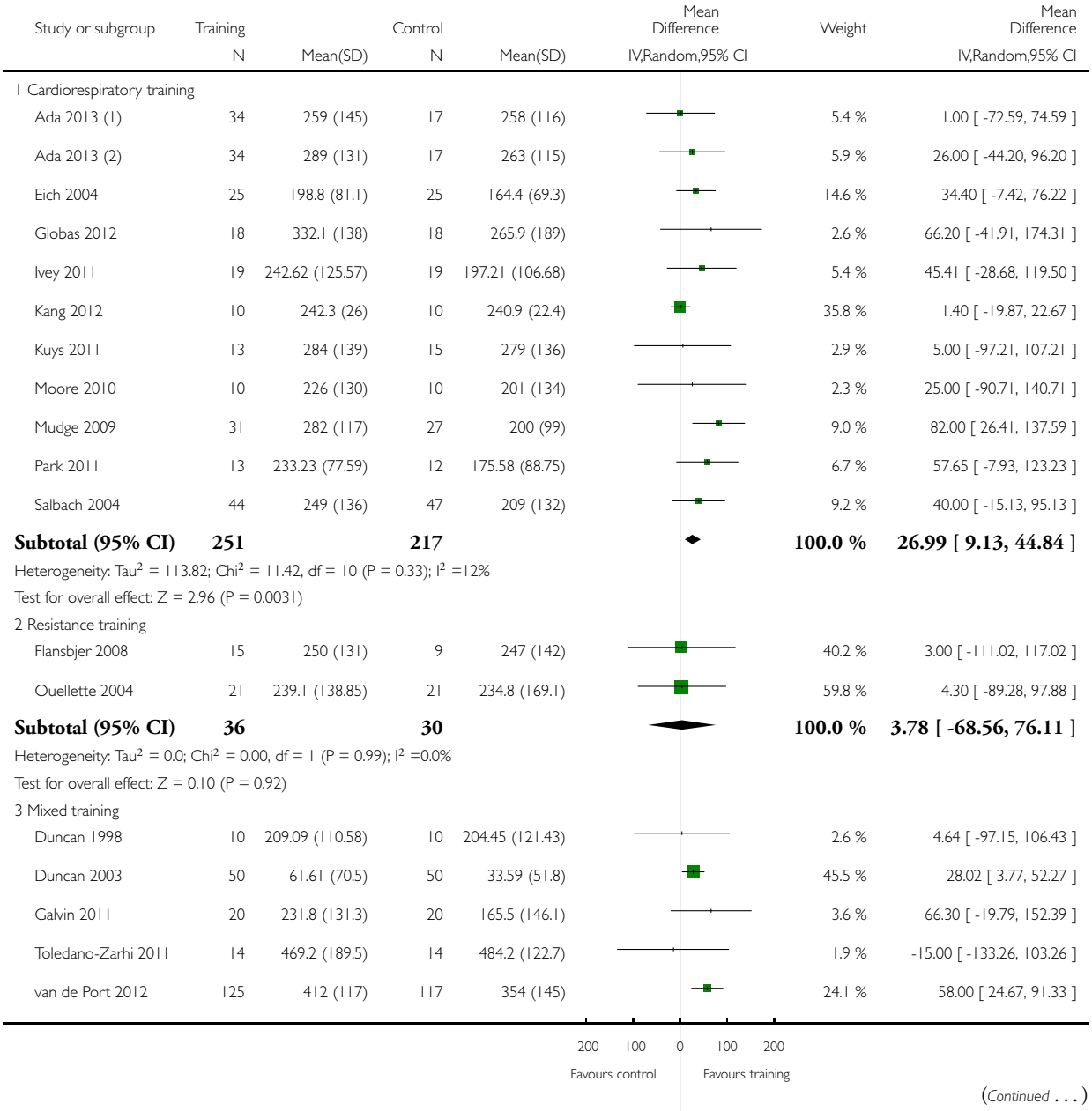
Analysis 7.4. Comparison 7 Cardiorespiratory versus resistance versus mixed training, Outcome 4 Mobility - gait endurance (6-MWT metres).

Review: Physical fitness training for stroke patients

Comparison: 7 Cardiorespiratory versus resistance versus mixed training

Outcome: 4 Mobility - gait endurance (6-MWT metres)



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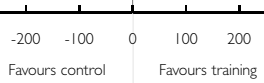
Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
Yang 2006	24	392.8 (54.2)	24	341.3 (126.8)		8.8 %	51.50 [-3.67, 106.67]
Zedlitz 2012	38	504 (94)	45	444 (112)		13.6 %	60.00 [15.68, 104.32]
Subtotal (95% CI)	**281**		**280**			**100.0 %**	**41.60 [25.25, 57.95]**

Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 4.62$, df = 6 (P = 0.59); $I^2 = 0.0\%$

Test for overall effect: Z = 4.99 (P < 0.00001)

Test for subgroup differences: $Chi^2 = 2.09$, df = 2 (P = 0.35), $I^2 = 4\%$



(1) Ada 2013 2 month training group with 50% of the control participants

(2) Ada 2013 4 month training group with 50% of the control participants

Analysis 7.5. Comparison 7 Cardiorespiratory versus resistance versus mixed training, Outcome 5 Balance - Berg Balance Scale.

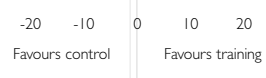
Review: Physical fitness training for stroke patients

Comparison: 7 Cardiorespiratory versus resistance versus mixed training

Outcome: 5 Balance - Berg Balance Scale

Study or subgroup	Training N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 Cardiorespiratory training							
Bateman 2001	35	45 (11.9)	42	45.3 (11.3)		5.8 %	-0.30 [-5.52, 4.92]
Globas 2012	18	51.1 (6.4)	18	44.3 (11.9)		4.1 %	6.80 [0.56, 13.04]
Moore 2010	10	48 (10)	10	46 (10)		2.1 %	2.00 [-6.77, 10.77]
Salbach 2004	44	44 (11)	47	41 (13)		6.5 %	3.00 [-1.94, 7.94]
Takami 2010 (1)	11	50.6 (5.6)	6	48.1 (9.2)		2.4 %	2.50 [-5.57, 10.57]
Takami 2010 (2)	10	54.8 (2.4)	6	48.1 (9.2)		2.8 %	6.70 [-0.81, 14.21]
Subtotal (95% CI)	**128**		**129**			**23.7 %**	**3.14 [0.56, 5.73]**

Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 3.95$, df = 5 (P = 0.56); $I^2 = 0.0\%$



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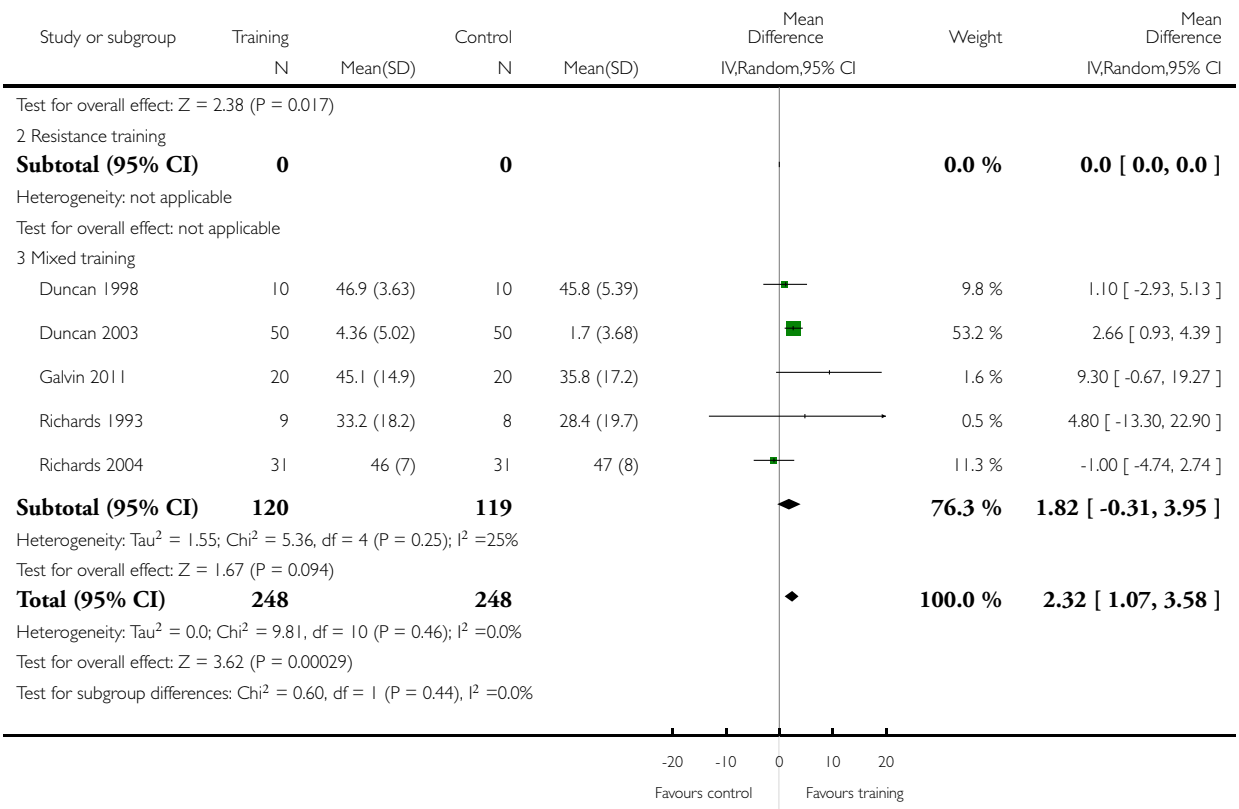

(1) Takami 2010 forward walking group and 50% of control group

(2) Takami 2010 backward walking group and 50% of control group

ADDITIONAL TABLES

Table 1. Outline of the studies which focused on cardiorespiratory training interventions

Study ID	Mode of training	During or after usual care	Upper or lower body	Specific training	Intensity	Duration (minutes)	Frequency (days)	Programme length (weeks)	ACSM criteria met
Aidar 2007	Water training	After	Both	Yes	Unknown	45 to 60	2	12	Unknown
Lennon 2008	Cycle ergometer (cardiac rehabili-	After	Both	No	50% to 60% maximum heart	30	2	10	Yes

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Table 1. Outline of the studies which focused on cardiorespiratory training interventions (*Continued*)

	tation programme)				rate				
Moore 2010	Treadmill gait training with overhead harness	After	Lower body	Yes	80 to 85 age-predicted maximum heart rate	Unknown	2 to 5	4	Yes
Mudge 2009	Circuit training	After	Lower body	Yes	Unknown	30	3	4	Unknown
Smith 2008	Treadmill gait training	After	Lower body	Yes	Rate perceived exertion ≤ 13	20	3	4	Yes
Glasser 1986	Kinetron	During	Lower body	No	Unknown	20 to 60	5	3	Unknown
Cuviello-Palmer 1988	Kinetron	During	Lower body	No	Heart rate < resting + 20 beats/minute	7 to 17	5	3	No
da Cunha 2002	Treadmill gait training with body weight support (BWS)	During	Lower body	Yes	Unknown	20	5	2 to 3	Unknown
Pohl 2002	Treadmill gait training Group (1) STT (structured speed-dependent treadmill training) Group (2) LTT (limited progres-	During	Lower body	Yes	Unknown	30	3	4	Unknown

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Table 1. Outline of the studies which focused on cardiorespiratory training interventions (*Continued*)

	sive treadmill training group)								
Eich 2004	Treadmill gait training	During	Lower body	Yes	60% heart rate reserve	30	5	6	Yes
Bateman 2001	Cycle ergometer	During	Lower body	No	60% to 80% age-related heart rate maximum	≤ 30	3	12	Yes
Katz-Leurer 2003	Cycle ergometer	After	Lower body	No	≤ 60% heart rate reserve	20 then 30	5 then 3	2 then 6 (total 8)	Yes
Potempa 1995	Cycle ergometer	After	Lower body	No	30% to 50% maximum effort	30	3	10	Yes
Salbach 2004	Circuit training	After	Lower body	Yes	Unknown	55	3	6	Unknown
Ada 2013	Treadmill + overground walking	After	Lower body	Yes	Unknown	30min	3	Group 1 = 16 Group 2 = 8	Unknown
Globas 2012	Treadmill	After	Lower body	Yes	40% to 50% progressing to 60% to 80% heart rate reserve	10 to 20 min increasing to 30 to 50 min	3	12	Yes
Ivey 2010	Treadmill	After	Lower body	Yes	40% to 50% progressing to 60% to 70% heart rate reserve	10 to 20 min increasing to 40 min	3	24 (6 months)	Yes
Ivey 2011	Treadmill	After	Lower body	Yes	40% to 50% progressing	10 to 20 min increasing to	3	24 (6 months)	Yes

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Table 1. Outline of the studies which focused on cardiorespiratory training interventions (*Continued*)

					to 60% to 70% heart rate reserve	40 min			
Kang 2012	Treadmill	After	Lower body	Yes	Unknown	30	3	4	Unknown
Kuys 2011	Treadmill	After	Lower body	Yes	40% progressing to 60% heart rate reserve	30	3	6	Yes
Park 2011	Over-ground community-based walking	During	Lower	Yes	Unknown	60	3	4	Unknown
Takami 2010	Treadmill gait training with body weight support (BWS) Group (1) Backward walking group Group (2) Forward walking group	During	Lower body	Yes	Unknown	10	6	3	Unknown

ACSM: American College of Sports Medicine
min: minute(s)

Table 2. Outline of the studies which focused on resistance training interventions

Study ID	Mode of training	During/ after usual care	Upper or lower body	Specific training	Intensity	Duration (minutes)	Frequency (days)	Programme length (weeks)	ACSM criteria
Bale 2008	Resistance training; weights	During	Lower body	No	10 to 15 repetitions to achieve moderate	50	3	4	Yes

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Table 2. Outline of the studies which focused on resistance training interventions (*Continued*)

					fatigue				
Flansbjer 2008	Dynamic and isokinetic resistance training (leg extension/curl rehab exercise machine)	After	Lower body	Yes	6 to 10 repetitions equivalent to 80% of maximum load	90	Unknown	10	Unclear (criteria nearly met)
Sims 2009	Resistance training; machine weights	After	Both	Yes	3 x 8/10 repetitions at 80% one repetition maximum	Unknown	2	10	Unclear (criteria nearly met)
Inaba 1973	Resistance training	During	Lower body	No	50% and 100% maximum weight	Unknown	'Daily'	4 to 8	Yes
Winstein 2004	Resistance training; weights; Theraband and grip devices	During	Upper body	No	Unknown	60	3 high 2 slow	4 to 6 (target of 20 sessions)	Unknown
Kim 2001	Resistance training; isokinetic dynamometer	After	Lower body	No	Maximal effort 3 x 10 repetitions	30	3	6	Yes
Ouellette 2004	Resistance training; weights and pneumatic resistance machines	After	Lower body	No	70% one repetition maximum: 3 x 8 to 10 repetitions	Not applicable	3	12	Unclear (criteria nearly met)

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Table 2. Outline of the studies which focused on resistance training interventions (*Continued*)

Aidar 2012	Resistance training; machine weights	After	Both	No	OMNI Resistance Exercise Scale	45 to 60	3	12	Unclear

ACSM: American College of Sports Medicine

Table 3. Outline of the studies which focused on mixed training interventions

Study ID	Mode of training	During or after usual care	Upper or lower body	Specific training	Intensity	Duration (minutes)	Frequency (days)	Programme length (weeks)	ACSM criteria
Cooke 2010	Resistance training plus treadmill training	During	Lower body	Yes	Unknown	60	4	6	Unknown
Donaldson 2009	Paretic upper limb exercises and hand grip activities	During	Upper body	Yes	Unknown	60	4	6	Unknown
Langhammer 2007	Walking, stationary bicycling, stair walking, treadmill, and resistance training	After	Both	Yes	70% to 80% maximum pulse (cardiorespiratory component); 50% to 60% one repetition maximum (strength component)	45	2/3	Unclear. Minimum 20 hours every third month in the first year after stroke	Yes
Richards 1993	Treadmill plus Kinetron plus tilt ta-	During	Lower body	Yes	Unknown	104	5	5	Unknown

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Table 3. Outline of the studies which focused on mixed training interventions (*Continued*)

	ble								
Richards 2004	Treadmill plus Kinetron plus limb load monitor	During	Lower body	Yes	Unknown	60	5	8	Unknown
Duncan 1998	Walking or cycle ergometry; elastic-resisted contractions	After	Both	Yes	Unknown	90	3	12	Cardio: no Strength: yes
Teixeira 1999	Walking and stepping or cycle ergometry; resistance training body mass, weights, and elastic	After	Lower body	Yes	50% to 70% maximum work rate (cardiorespiratory component) 50% to 80% one repetition maximum, 3 x 10 repetitions (strength component)	60 to 90	3	10	Cardio: yes Strength: yes
Duncan 2003	Circuit training	After	Lower body	Yes	50% to 60% heart rate reserve	90 to 120	3	4	Cardio: yes Strength: unclear
James 2002	Circuit training	After	Both	Yes	Unknown	90	3	12 to 14 (total of 36 sessions)	Cardio: no Strength: yes
Yang 2006	Functional stepping and chair rising	After	Lower body	Yes	Unknown	30	3	4	No

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Table 3. Outline of the studies which focused on mixed training interventions (*Continued*)

Mead 2007	Circuit including walking, stepping, cycle ergometry; resistance training body mass, weights, and elastic	After	Both	Yes	Rating of perceived exertion: 13 to 16	40 to 75	3	12 to 14 (total of 36 sessions)	Unknown
Galvin 2011	Family mediated gait and strength training	During	Lower	Yes	Unknown	35	7	8	Unknown
Toledano-Zarhi 2011	Treadmill, hand bike, cycle ergometer plus group exercise for strength, balance and co-ordination exercise	During	Both	Yes (treadmill)	Cardiorespiratory 50% to 70% of maximal heart rate	Cardiorespiratory 90 min Group 45 to 55 min	Cardiorespiratory 2/wk Group 1/wk	6	Cardio: yes Strength: unknown
van de Port 2012	Task-oriented circuit training. 8 workstations targeting balance, stair walking, turning, transfers, and speed walking	After	Lower	Yes (task-oriented)	Unknown	90	2	12	Unknown
Zedlitz 2012	Treadmill walking, strength training,	After	Both	Yes (walking)	Cardiorespiratory and strength	120	2	12	Cardio: yes Strength: unknown

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Table 3. Outline of the studies which focused on mixed training interventions (*Continued*)

	and home exercise assignments				progressed from 40% to 70%				

ACSM: American College of Sports Medicine

Table 4. Pooled walking data for cardiorespiratory training, resistance training, and mixed training at the end of the training period and at follow-up

End of intervention					End of follow-up		
Intervention	**Walking outcome**	**Trials (number of participants)**	**MD (95% CI)**	**Significance level**	**Trials (number of participants)**	**MD (95% CI)**	**Significance level**
Cardiorespiratory training	Maximal gait speed	13 (609)	7.37 m/min (3.70 to 11.03)	P < 0.0001	5 (312)	6.71 m/min (2.40 to 11.02)	P = 0.002
	Preferred gait speed	8 (425)	4.63 m/min (1.84 to 7.43)	P = 0.001	2 (126)	0.72 m/min (-6.78 to 8.22)	NS
	6-Minute Walking Test	10 (468)	26.99 metres (9.13 to 44.84)	P = 0.003	4 (233)	33.37 metres (-8.25 to 74.99)	NS
Resistance training	Maximal gait speed	4 (104)	1.92 m/min (-3.50 to 7.35)	NS	1 (24)	-19.8 m/min (-95.77 to 56.17)	NS
	Preferred gait speed	3 (80)	2.34 m/min (-6.77 to 11.45)	NS	-	-	-
	6-Minute Walking Test	2 (66)	3.78 metres (-68.56 to 76.11)	NS	1 (24)	11.0 m/min (-105.95 to 127.95)	NS
Mixed training	Maximal gait speed	-	-	-	-	-	-
	Preferred gait speed	9 (639)	4.54 m/min (0.95 to 8.14)	P = 0.01	4 (443)	1.60 m/min (-5.62 to 8.82)	NS
	6-Minute Walking Test	7 (561)	41.60 metres (25.25 to 57.95)	P < 0.00001	3 (365)	51.62 metres (25.20 to 78.03)	P = 0.0001

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CI: confidence interval
m: metre
MD: mean difference
min: minutes
NS: non-significant

APPENDICES

Appendix 1. CENTRAL search strategy (*The Cochrane Library*)

#1 MeSH descriptor: [Cerebrovascular Disorders] explode all trees
#2 MeSH descriptor: [Brain Injuries] this term only
#3 MeSH descriptor: [Brain Injury, Chronic] this term only
#4 stroke or poststroke or post-stroke or cerebrovasc* or brain vasc* or cerebral vasc* or cva* or apoplex* or SAH:ti,ab,kw
#5 (brain* or cerebr* or cerebell* or intracran* or intracerebral) near/5 (isch?emi* or infarct* or thrombo* or emboli* or occlus*):ti,ab,kw
#6 (brain* or cerebr* or cerebell* or intracerebral or intracranial or subarachnoid) near/5 (haemorrhage* or hemorrhage* or haematoma* or hematoma* or bleed*):ti,ab,kw
#7 MeSH descriptor: [Hemiplegia] this term only
#8 MeSH descriptor: [Paresis] explode all trees
#9 hempar* or hemipleg* or brain injur*:ti,ab,kw
#10 MeSH descriptor: [Gait Disorders, Neurologic] explode all trees
#11 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10
#12 MeSH descriptor: [Exercise] this term only
#13 MeSH descriptor: [Exercise Test] this term only
#14 MeSH descriptor: [Physical Exertion] this term only
#15 MeSH descriptor: [Exercise Therapy] this term only
#16 MeSH descriptor: [Physical Fitness] this term only
#17 MeSH descriptor: [Muscle Stretching Exercises] this term only
#18 MeSH descriptor: [Resistance Training] this term only
#19 MeSH descriptor: [Isometric Contraction] this term only
#20 MeSH descriptor: [Isotonic Contraction] this term only
#21 MeSH descriptor: [Sports] explode all trees
#22 MeSH descriptor: [Physical Endurance] explode all trees
#23 MeSH descriptor: [Locomotion] explode all trees
#24 MeSH descriptor: [Early Ambulation] this term only
#25 MeSH descriptor: [Sports Equipment] this term only
#26 MeSH descriptor: [Tai Ji] this term only
#27 MeSH descriptor: [Yoga] this term only
#28 MeSH descriptor: [Dance Therapy] this term only
#29 MeSH descriptor: [Exercise Movement Techniques] this term only
#30 MeSH descriptor: [Fitness Centers] this term only
#31 MeSH descriptor: [Leisure Activities] this term only
#32 MeSH descriptor: [Recreation] this term only
#33 physical near/3 (exercise* or exertion or endurance or therap* or conditioning or activit* or fitness):ti,ab,kw
#34 exercise near/3 (train* or intervention* or protocol* or program* or therap* or activit* or regim*):ti,ab,kw
#35 fitness near/3 (train* or intervention* or protocol* or program* or therap* or activit* or regim* or centre* or center*):ti,ab,kw

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#36 (training or conditioning) near/3 (intervention* or protocol* or program* or activit* or regim*):ti,ab,kw
#37 sport* or recreation* or leisure or cycling or bicycl* or rowing or treadmill* or running or circuit training or swim* or walk* or dance* or dancing or tai ji or tai chi or yoga:ti,ab,kw
#38 (endurance or aerobic or cardio*) near/3 (fitness or train* or intervention* or protocol* or program* or therap* or activit* or regim*):ti,ab,kw
#39 muscle strengthening or progressive resist*:ti,ab,kw
#40 (weight or strength* or resistance) next (train* or lift* or exercise*):ti,ab,kw
#41 (isometric or isotonic or eccentric or concentric) next (action* or contraction* or exercise*):ti,ab,kw
#42 {or #12-#41}
#43 #11 and #42
#44 "SR-STROKE*"
#45 #43 not #44

Appendix 2. MEDLINE (Ovid) search strategy

1. cerebrovascular disorders/ or exp basal ganglia cerebrovascular disease/ or exp brain ischemia/ or exp carotid artery diseases/ or exp intracranial arterial diseases/ or exp intracranial arteriovenous malformations/ or exp "intracranial embolism and thrombosis"/ or exp intracranial hemorrhages/ or stroke/ or exp brain infarction/ or vasospasm, intracranial/ or vertebral artery dissection/ or brain injuries/ or brain injury, chronic/
2. (stroke or poststroke or post-stroke or cerebrovasc$ or brain vasc$ or cerebral vasc$ or cva$ or apoplex$ or SAH).tw.
3. ((brain$ or cerebr$ or cerebell$ or intracran$ or intracerebral) adj5 (isch?emi$ or infarct$ or thrombo$ or emboli$ or occlus$)).tw.
4. ((brain$ or cerebr$ or cerebell$ or intracerebral or intracranial or subarachnoid) adj5 (haemorrhage$ or hemorrhage$ or haematoma$ or hematoma$ or bleed$)).tw.
5. hemiplegia/ or exp paresis/
6. (hempar$ or hemipleg$ or brain injur$).tw.
7. Gait Disorders, Neurologic/
8. or/1-7
9. exercise/
10. exercise test/
11. physical exertion/
12. exercise therapy/
13. physical fitness/
14. muscle stretching exercises/ or resistance training/
15. isometric contraction/
16. isotonic contraction/
17. exp sports/
18. exp physical endurance/
19. exp locomotion/
20. early ambulation/
21. sports equipment/
22. tai ji/ or yoga/ or dance therapy/
23. exercise movement techniques/
24. fitness centers/
25. leisure activities/
26. recreation/
27. (physical adj3 (exercise$ or exertion or endurance or therap$ or conditioning or activit$ or fitness)).tw.
28. (exercise adj3 (train$ or intervention$ or protocol$ or program$ or therap$ or activit$ or regim$)).tw.
29. (fitness adj3 (train$ or intervention$ or protocol$ or program$ or therap$ or activit$ or regim$ or centre$ or center$)).tw.
30. ((training or conditioning) adj3 (intervention$ or protocol$ or program$ or activit$ or regim$)).tw.
31. (sport$ or recreation$ or leisure or cycling or bicycl$ or rowing or treadmill$ or running or circuit training or swim$ or walk$ or dance$ or dancing or tai ji or tai chi or yoga).tw.

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32. ((endurance or aerobic or cardio$) adj3 (fitness or train$ or intervention$ or protocol$ or program$ or therap$ or activit$ or regim$)).tw.
33. (muscle strengthening or progressive resist$).tw.
34. ((weight or strength$ or resistance) adj (train$ or lift$ or exercise$)).tw.
35. ((isometric or isotonic or eccentric or concentric) adj (action$ or contraction$ or exercise$)).tw.
36. or/9-35
37. Randomized Controlled Trials as Topic/
38. random allocation/
39. Controlled Clinical Trials as Topic/
40. control groups/
41. clinical trials as topic/
42. double-blind method/ or single-blind method/
43. Placebos/ or placebo effect/
44. cross-over studies/
45. Multicenter Studies as Topic/
46. Therapies, Investigational/
47. Research Design/
48. Program Evaluation/
49. evaluation studies as topic/
50. randomized controlled trial.pt.
51. controlled clinical trial.pt.
52. clinical trial.pt.
53. multicenter study.pt.
54. (evaluation studies or comparative study).pt.
55. random$.tw.
56. (controlled adj5 (trial$ or stud$)).tw.
57. (clinical$ adj5 trial$).tw.
58. ((control or treatment or experiment$ or intervention) adj5 (group$ or subject$ or patient$)).tw.
59. (quasi-random$ or quasi random$ or pseudo-random$ or pseudo random$).tw.
60. ((multicenter or multicentre or therapeutic) adj5 (trial$ or stud$)).tw.
61. ((control or experiment$ or conservative) adj5 (treatment or therapy or procedure or manage$)).tw.
62. ((singl$ or doubl$ or tripl$ or trebl$) adj5 (blind$ or mask$)).tw.
63. (coin adj5 (flip or flipped or toss$)).tw.
64. versus.tw.
65. (cross-over or cross over or crossover).tw.
66. (placebo$ or sham).tw.
67. (assign$ or alternate or allocat$ or counterbalance$ or multiple baseline).tw.
68. controls.tw.
69. (treatment$ adj6 order).tw.
70. or/37-69
71. 8 and 36 and 70
72. limit 71 to humans

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Appendix 3. EMBASE (Ovid) search strategy

1. cerebrovascular disease/ or basal ganglion hemorrhage/ or brain hemorrhage/ or brain infarction/ or brain ischemia/ or carotid artery disease/ or cerebral artery disease/ or cerebrovascular accident/ or intracranial aneurysm/ or occlusive cerebrovascular disease/ or stroke/
2. stroke patient/ or stroke unit/
3. (stroke or poststroke or post-stroke or cerebrovasc$ or brain vasc$ or cerebral vasc$ or cva$ or apoplex$ or SAH).tw.
4. ((brain$ or cerebr$ or cerebell$ or intracran$ or intracerebral) adj5 (isch?emi$ or infarct$ or thrombo$ or emboli$ or occlus$)).tw
5. ((brain$ or cerebr$ or cerebell$ or intracerebral or intracranial or subarachnoid) adj5 (haemorrhage$ or hemorrhage$ or haematoma$ or hematoma$ or bleed$)).tw.
6. brain injury/
7. hemiparesis/ or hemiplegia/ or paresis/
8. (hempar$ or hemipleg$ or brain injur$).tw.
9. or/1-8
10. exercise/ or aerobic exercise/ or aquatic exercise/ or arm exercise/ or athletic performance/ or dynamic exercise/ or exercise intensity/ or isokinetic exercise/ or muscle exercise/ or pilates/ or static exercise/
11. exercise test
12. kinesiotherapy/ or isometric exercise/ or movement therapy/ or muscle training/ or neuromuscular facilitation/ or stretching exercise/ or tai chi/ or yoga/
13. muscle strength/
14. muscle isometric contraction/ or muscle isotonic contraction/
15. mobilization/
16. locomotion/ or swimming/ or walking/ or dancing/
17. physical activity/ or jumping/ or lifting effort/ or stretching/ or weight lifting/
18. fitness/ or exp training/ or endurance/
19. exp sport/ or recreation/ or leisure/
20. (physical adj3 (exercise$ or exertion or endurance or therap$ or conditioning or activit$ or fitness)).tw.
21. (exercise adj3 (train$ or intervention$ or protocol$ or program$ or therap$ or activit$ or regim$)).tw.
22. (fitness adj3 (train$ or intervention$ or protocol$ or program$ or therap$ or activit$ or regim$ or centre$ or center$)).tw.
23. ((training or conditioning) adj3 (intervention$ or protocol$ or program$ or activit$ or regim$)).tw.
24. (sport$ or recreation$ or leisure or cycling or bicycl$ or rowing or treadmill$ or running or circuit training or swim$ or walk$ or dance$ or dancing or tai ji or tai chi or yoga).tw.
25. ((endurance or aerobic or cardio$) adj3 (fitness or train$ or intervention$ or protocol$ or program$ or therap$ or activit$ or regim$)).tw.
26. (muscle strengthening or progressive resist$).tw.
27. ((weight or strength$ or resistance) adj (train$ or lift$ or exercise$)).tw.
28. ((isometric or isotonic or eccentric or concentric) adj (action$ or contraction$ or exercise$)).tw.
29. or/10-28
30. Randomized Controlled Trial/
31. Randomization/
32. Controlled Study/
33. control group/
34. clinical trial/ or controlled clinical trial/
35. Crossover Procedure/
36. Double Blind Procedure/
37. Single Blind Procedure/ or triple blind procedure/
38. Parallel Design/
39. placebo/
40. Multicenter Study/
41. experimental design/ or experimental study/ or quasi experimental study/
42. experimental therapy/
43. evaluation/ or “evaluation and follow up”/ or evaluation research/ or clinical evaluation/
44. methodology/
45. “types of study”/

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46. research subject/
47. Comparative Study/
48. random$.tw.
49. (controlled adj5 (trial$ or stud$)).tw.
50. (clinical$ adj5 trial$).tw.
51. ((control or treatment or experiment$ or intervention) adj5 (group$ or subject$ or patient$)).tw.
52. (quasi-random$ or quasi random$ or pseudo-random$ or pseudo random$).tw.
53. ((multicenter or multicentre or therapeutic) adj5 (trial$ or stud$)).tw.
54. ((control or experiment$ or conservative) adj5 (treatment or therapy or procedure or manage$)).tw.
55. ((singl$ or doubl$ or tripl$ or trebl$) adj5 (blind$ or mask$)).tw.
56. (coin adj5 (flip or flipped or toss$)).tw.
57. versus.tw.
58. (cross-over or cross over or crossover).tw.
59. placebo$.tw.
60. sham.tw.
61. (assign$ or alternate or allocat$ or counterbalance$ or multiple baseline).tw.
62. controls.tw.
63. (treatment$ adj6 order).tw.
64. or/30-63
65. 9 and 29 and 64
66. limit 65 to human

Appendix 4. CINAHL (EBSCO) search strategy

S78. S57 and S77
S77. S58 or S59 or S60 or S61 or S62 or S63 or S64 or S65 or S66 or S67 or S70 or S71. or S74 or S75 or S76
S76. TI (meta analysis* or metaanlaysis or meta-anlaysis or systematic review*) or AB (meta analysis* or metaanlaysis or meta-anlaysis or systematic review*)
S75. TI (counterbalance* or multiple baseline* or ABAB design) or AB (counterbalance* or multiple baseline* or ABAB design)
S74. S72 and S73
S73. TI trial* or AB trial*
S72. TI (clin* or intervention* or compar* or experiment* or preventive or therapeutic) or AB (clin* or intervention* or compar* or experiment* or preventive or therapeutic)
S71. TI (crossover or cross-over or placebo* or control* or factorial or sham) or AB (crossover or cross-over or placebo* or control* or factorial or sham)
S70. S68 and S69
S69. TI (blind* or mask*) or AB (blind* or mask*)
S68. TI (singl* or doubl* or tripl* or trebl*) or AB (singl* or doubl* or tripl* or trebl*)
S67. TI random* or AB random*
S66. PT systematic review
S65. PT clinical trial
S64. (MH "Community Trials") or (MH "Experimental Studies") or (MH "One-Shot Case Study") or (MH "Pretest-Posttest Design+") or (MH "Solomon Four-Group Design") or (MH "Static Group Comparison") or (MH "Study Design")
S63. (MH "Clinical Research") or (MH "Clinical Nursing Research")
S62. (MH "Placebo Effect") or (MH "Placebos") or (MH "Meta Analysis")
S61. (MH "Factorial Design") or (MH "Quasi-Experimental Studies") or (MH "Nonrandomized Trials")
S60. (MH "Control (Research)") or (MH "Control Group")
S59. (MH "Crossover Design") or (MH "Clinical Trials+") or (MH "Comparative Studies")
S58. (MH "Random Assignment") or (MH "Random Sample+")
S57. S12 and S56
S56. S13 or S14 or S15 or S16 or S17 or S18 or S19 or S20 or S21 or S22 or S23 or S24 or S25 or S26 or S27 or S28 or S29 or S30 or S31 or S32 or S35 or S38 or S41 or S44 or S45 or S48 or S49 or S52 or S55

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S55. S53 and S54
S54. TI (action* or contraction* or exercise*) or AB (action* or contraction* or exercise*)
S53. TI (isometric or isotonic or eccentric or concentric) or AB (isometric or isotonic or eccentric or concentric)
S52. S50 and S51
S51. TI (train* or lift* or exercise*) or AB (train* or lift* or exercise*)
S50. TI (weight or strength* or resistance) or AB (weight or strength* or resistance)
S49. TI (muscle strengthening or progressive resist*) or AB (muscle strengthening or progressive resist*)
S48. S46 and S47
S47. TI (fitness or train* or intervention* or protocol* or program* or therap* or activit* or regim*) or AB (fitness or train* or intervention* or protocol* or program* or therap* or activit* or regim*)
S46. TI (endurance or aerobic or cardio*) or AB (endurance or aerobic or cardio*)
S45. TI (sport* or recreation* or leisure or cycling or bicycl* or rowing or treadmill* or running or circuit training or swim* or walk* or dance* or dancing or tai ji or tai chi or yoga) or AB (sport* or recreation* or leisure or cycling or bicycl* or rowing or treadmill* or running or circuit training or swim* or walk* or dance* or dancing or tai ji or tai chi or yoga)
S44. S42 and S43
S43. TI (intervention* or protocol* or program* or activit* or regim*) or AB (intervention* or protocol* or program* or activit* or regim*)
S42. TI (training or conditioning) or AB (training or conditioning)
S41. S39 and S40
S40. TI (train* or intervention* or protocol* or program* or therap* or activit* or regim* or centre* or center*) or AB (train* or intervention* or protocol* or program* or therap* or activit* or regim* or centre* or center*)
S39. TI fitness or AB fitness
S38. S36 and S37
S37. TI (train* or intervention* or protocol* or program* or therap* or activit* or regim*) or AB (train* or intervention* or protocol* or program* or therap* or activit* or regim*)
S36. TI exercise or AB exercise
S35. S33 and S34
S34. TI (exercise* or exertion or endurance or therap* or conditioning or activit* or fitness) or AB (exercise* or exertion or endurance or therap* or conditioning or activit* or fitness)
S33. TI physical or AB physical
S32. (MH "Treadmills")
S31. (MH "Recreation+") or (MH "Recreational Therapists") or (MH "Recreational Therapy") or (MH "Recreation Therapy (Iowa NIC)")
S30. (MH "Leisure Activities+")
S29. (MH "Fitness Centers")
S28. (MH "Tai Chi")
S27. (MH "Dancing+") or (MH "Aerobic Dancing") or (MH "Dance Therapy")
S26. (MH "Yoga")
S25. (MH "Sports Equipment and Supplies+")
S24. (MH "Ambulation Therapy (Saba CCC)") or (MH "Early Ambulation") or (MH "Exercise Therapy: Ambulation (Iowa NIC)") or (MH "Ambulation: Walking (Iowa NOC)") or (MH "Walking+")
S23. (MH "Locomotion+")
S22. (MH "Sports+")
S21. (MH "Isometric Contraction") or (MH "Isotonic Contraction")
S20. (MH "Muscle Strengthening+") or (MH "Athletic Training+") or (MH "Athletic Training Programs")
S19. (MH "Stretching")
S18. (MH "Physical Endurance+") or (MH "Endurance Sports") or (MH "Endurance (Iowa NOC)")
S17. (MH "Physical Fitness+")
S16. (MH "Therapeutic Exercise+")
S15. (MH "Exertion+")
S14. (MH "Exercise Test+") or (MH "Exercise Test, Cardiopulmonary") or (MH "Exercise Test, Muscular+")
S13. (MH "Exercise+")
S12. S1 or S2 or S5 or S8 or S9 or S10 or S11

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S11. (MH "Gait Disorders, Neurologic+")
S10. TI (hemipleg* or hemipar* or paresis or paretic) or AB (hemipleg* or hemipar* or paresis or paretic)
S9. (MH "Hemiplegia")
S8. S6 and S7
S7. TI (haemorrhage* or hemorrhage* or haematoma* or hematoma* or bleed*) or AB (haemorrhage* or hemorrhage* or haematoma* or hematoma* or bleed*)
S6. TI (brain* or cerebr* or cerebell* or intracerebral or intracranial or subarachnoid) or AB (brain* or cerebr* or cerebell* or intracerebral or intracranial or subarachnoid)
S5. S3 and S4
S4. TI (ischemi* or ischaemi* or infarct* or thrombo* or emboli* or occlus*) or AB (ischemi* or ischaemi* or infarct* or thrombo* or emboli* or occlus*)
S3. TI (brain* or cerebr* or cerebell* or intracran* or intracerebral) or AB (brain* or cerebr* or cerebell* or intracran* or intracerebral)
S2. TI (stroke or poststroke or post-stroke or cerebrovasc* or brain vasc* or cerebral vasc or cva or apoplex or SAH) or AB (stroke or poststroke or post-stroke or cerebrovasc* or brain vasc* or cerebral vasc or cva or apoplex or SAH)
S1. (MH "Cerebrovascular Disorders+") or (MH "stroke patients") or (MH "stroke units")

Appendix 5. SPORTDiscus (EBSCO) search strategy

S16. (S7 and S15)
S15. S8 or S9 or S10 or S11 or S12 or S13 or S14
S14. SU (random* or trial or crossover or cross-over or placebo* or control* or factorial or sham or counterbalance* or multiple baseline* or ABAB design or meta analysis* or metaanlaysis or meta-anlaysis or systematic review*) or KW (random* or trial or crossover or cross-over or placebo* or control* or factorial or sham or counterbalance* or multiple baseline* or ABAB design or meta analysis* or metaanlaysis or meta-anlaysis or systematic review*)
S13. TI (meta analysis* or metaanlaysis or meta-anlaysis or systematic review*) or AB (meta analysis* or metaanlaysis or meta-anlaysis or systematic review*)
S12. TI (counterbalance* or multiple baseline* or ABAB design) or AB (counterbalance* or multiple baseline* or ABAB design)
S11. (TI (clin* or intervention* or compar* or experiment* or preventive or therapeutic) or AB (clin* or intervention* or compar* or experiment* or preventive or therapeutic)) and (TI trial* or AB trial*)
S10. TI (crossover or cross-over or placebo* or control* or factorial or sham) or AB (crossover or cross-over or placebo* or control* or factorial or sham)
S9. (TI (singl* or doubl* or tripl* or trebl*) or AB (singl* or doubl* or tripl* or trebl*)) and (TI (blind* or mask*) or AB (blind* or mask*))
S8. TI random* or AB random*
S7. S1 or S2 or S3 or S4 or S5 or S6
S6. TI (hemipleg* or hemipar* or paresis or paretic) or AB (hemipleg* or hemipar* or paresis or paretic)
S5. DE "HEMIPLEGIA"
S4. (TI (brain* or cerebr* or cerebell* or intracerebral or intracranial or subarachnoid) or AB (brain* or cerebr* or cerebell* or intracerebral or intracranial or subarachnoid)) and (TI (haemorrhage* or hemorrhage* or haematoma* or hematoma* or bleed*) or AB (haemorrhage* or hemorrhage* or haematoma* or hematoma* or bleed*))
S3. (TI (brain* or cerebr* or cerebell* or intracran* or intracerebral) or AB (brain* or cerebr* or cerebell* or intracran* or intracerebral)) and (TI (ischemi* or ischaemi* or infarct* or thrombo* or emboli* or occlus*) or AB (ischemi* or ischaemi* or infarct* or thrombo* or emboli* or occlus*))
S2. TI (stroke or poststroke or post-stroke or cerebrovasc* or brain vasc* or cerebral vasc or cva or apoplex or SAH) or AB (stroke or poststroke or post-stroke or cerebrovasc* or brain vasc* or cerebral vasc or cva or apoplex or SAH)
S1. DE "CEREBROVASCULAR disease" or DE "BRAIN Hemorrhage" or DE "CEREBRAL embolism & thrombosis"

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WHAT'S NEW

Last assessed as up-to-date: 31 January 2013.

Date	Event	Description
5 July 2013	New citation required and conclusions have changed	Additional co-author. We have revised the main text and conclusions of the review according to the findings of the new included trials
28 January 2013	New search has been performed	We have updated all main electronic search strategies to January 2013. We have included 13 additional randomised clinical trials, bringing the total number of included trials to 45, involving 2188 participants. We have incorporated 'Risk of bias' tables

HISTORY

Protocol first published: Issue 4, 2001

Review first published: Issue 1, 2004

Date	Event	Description
22 November 2010	New citation required and conclusions have changed	New first author. We have revised the main text and conclusions of the review according to the findings of the new included trials
22 November 2010	New search has been performed	We have updated all main electronic search strategies to March 2010. We have included 11 additional randomised clinical trials and 7 ongoing trials. We have better clarified our inclusion criteria and objectives
2 March 2009	New search has been performed	We updated the search of the Cochrane Stroke Group Trials Register in March 2009
3 November 2008	New citation required and conclusions have changed	There is sufficient evidence to incorporate cardiorespiratory training, using walking as a mode of exercise, into the rehabilitation of patients with stroke in order to improve speed, tolerance, and independence during walking, but further trials are needed to determine the optimal exercise prescription after stroke and to establish whether any long-term benefits exist
3 November 2008	New search has been performed	We updated the searches to March 2007. There are now 24 trials, involving 1147 participants, included in the review; 12 more trials than in the previous version.

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(*Continued*)

		The text of the review has been revised throughout
23 October 2008	Amended	Converted to new review format.

CONTRIBUTIONS OF AUTHORS

Original review

DH Saunders, CA Greig, GE Mead and A Young contributed to writing the review protocol.
DH Saunders developed and ran searches, selected studies, extracted and interpreted data, performed the analyses, and co-wrote the review.
CA Greig and GE Mead selected studies, extracted and interpreted data, performed the analyses, and co-wrote the review.
A Young provided comments on interim drafts of the review.

For this update

DH Saunders developed and ran searches, selected studies, extracted and interpreted data, performed the analyses, and wrote the review.
MF Sanderson selected studies, extracted and interpreted data, and contributed to writing the review.
M Brazzelli advised on the methodology and analyses and provided comments on a draft version of the review.
GE Mead and CA Greig helped select studies and provided comments on a draft version of the review.

DECLARATIONS OF INTEREST

DH Saunders and CA Greig were co-authors of one included study (Mead 2007).

MF Sanderson and DH Saunders received NIHR research funding to complete this update.

GE Mead has received research funding for exercise after stroke. She has received honoraria from Later Life Training to develop an educational course of exercise after stroke for exercise professionals. She has also received honoraria and expenses to present work on exercise after stroke at conferences. She has led a trial of exercise after stroke that is included in the review (Mead 2007).

M Brazzelli has no declarations of interest.

SOURCES OF SUPPORT

Internal sources

- No sources of support supplied

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External sources

- National Institute for Health Research (NIHR), UK.

Cochrane Review Incentive Scheme 2012

DIFFERENCES BETWEEN PROTOCOL AND REVIEW

Subgroup analyses were on the whole not possible as there were too few trials within the meta-analyses and too many other influential factors.

In this update we have changed the approach from one where we discussed various elements of trial quality to adoption of the Cochrane 'Risk of bias' tool.

INDEX TERMS

Medical Subject Headings (MeSH)

*Physical Fitness; Activities of Daily Living; Exercise Therapy [*methods]; Randomized Controlled Trials as Topic; Resistance Training; Stroke [*rehabilitation]

MeSH check words

Humans

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